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ORIGINAL ARTICLES.

INJURIES OF THE BLADDER DURING LAPAROTOMY, INCLUDING A REPORT OF SIXTY-SEVEN CASES.

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Case 1.—On December 5th, 1888, I performed laparotomy for what was supposed to be a pelvic abscess in a woman 25 years old who had been married three years and had never borne children. The history comprised pelvic pain of long standing and varying degree, with occasional discharges of pus through the rectum—the latter feature being of doubtful accuracy. Two distinct swellings were detectible, one on either side of the uterus, the one on the left being the greater, and about the size of a billiard ball. The uterus and adjacent structures were quite immovable.

On completing the abdominal incision, the omentum was found to be attached to the anterior abdominal wall, and when the adhesions were partially separated it was discovered, further, that both the omentum and abdominal wall were adherent to the bladder. The adhesions were not especially firm, and were readily separated by means of the fingers and the handle of a scalpel. Through the opening thus made there appeared a thick wall of tissue, pinkish red in color, which roofed over the entire contents of the true pelvis, and the uterus, ovaries, and tubes could be neither seen nor directly felt. I pressed the finger-points in every part and in various directions in the endeavor to find a spot of such character as to indicate the presence of underlying fluid, but without success. Under bimanual exploration I could feel with greater distinctness than before the hard masses on either side of the pelvis, but their nature was uncertain and their removal impracticable; therefore, I reluctantly closed the wound, and dressed it in the ordinary way.

On the following day the dressings were found to be saturated with urine containing some blood, and only a small amount had been withdrawn by the catheter. This too was bloody. Evidently the bladder had been ruptured during the separation of the adhesions to its walls. The fistulous opening was between two of the upper stitches, and not more than three inches below the umbilicus.

A sigmoid catheter was placed in the bladder. Through this bloody urine escaped for four days. A lesser amount also came through the fistula. The presence of the catheter caused so much irritability that I removed it, and subsequently an ordinary soft catheter was introduced every two hours. During the succeeding twenty-four hours a full amount of urine appeared to be withdrawn and none came through the abdominal wound, but on the evening of the sixth day it again flowed from the fistula, and the permanent catheter was replaced. The quantity of blood had gradually lessened, and at the end of the seventh day disappeared entirely. Urine continued to escape through the fistula in steadily diminishing amount until the 28th of December—twenty-three days after the operation—when it ceased and the opening was permanently closed.

The foregoing experience taught me how easily such an accident may occur, and in view of the frequency with which laparotomies have been performed—amounting to many thousands—I thought it highly probable that it had occurred oftener than the few published cases would seem to indicate. For the purpose of testing the matter I addressed inquiries to more than seventy prominent abdominal surgeons, at home and abroad, and although more than one half of those to whom I applied failed to respond, I succeeded in obtaining the details of many hitherto unpublished cases.

Cases 2 to 10.[1]—In 1880, Gustave Eustache published an account of ten cases of bladder injury, one of which occurred in his own practice, with recovery of the patient. Of the others, Tauffer had one and the patient recovered; Péan one, the patient also recovering; Henry Smith one, the patient dying; Spencer Wells two, with one death and one recovery; Thornton three, one of whom died, and the other two recovered; Bantock one, with recovery.

[1] Journal des Sciences Médicales de Lille, 1880.

Case 11. — Dr. Gustave Eustache,[2] Lille, France. Operation May 14th, 1878. There were extensive adhesions, and the bladder was carried upward. At a point nearly as high as the umbilicus it was incised for nearly three-fourths of an inch, permitting the escape of urine into the abdominal cavity. The bladder was sutured with catgut, the abdominal cavity cleansed and the wound closed. The patient wholly recovered.

Case 12.—Dr. T. G. Thomas reported an interesting case to the American Gynecological Society[3] in 1881, in which during a laparotomy undertaken for the removal of an ovarian cyst he found the bladder expanded over the front aspect of the tumor "upward to a point midway between the umbilicus and ensiform cartilage, and laterally well down into the lumbar regions." The extent of tumor surface thus covered by the displaced bladder was so great as to preclude the use of the trocar for the purpose of evacuating the cystic contents, and the adhesions between the viscus and the tumor were so firm, and their limits so vaguely defined, that it seemed as though the effort to remove the tumor would have to be abandoned. However, as the result of a happy thought, the operator cut through the anterior wall of the bladder, so that one or two fingers could be inserted. In this manner the extent of the viscus was ascertained, the adhesions were cut away from the tumor side, and soon the attachments were entirely severed. The tumor was then removed in the ordinary manner.

There remained however the embarrassing presence of an immensely hypertrophied bladder with an incision through its wall. The operator met this difficulty by using the abdominal walls as a pair of clamps to bring the vesical walls securely together externally, so that if leakage should occur it would not take place in the peritoneum. The abdominal wound was closed from above downward with silver sutures. When the wound in the bladder was reached the needle, which had an eye near its extremity, was passed "through the abdominal wall, then through one vesical wall, then through the other, and lastly through the opposite abdominal wall," and this was continued until the whole opening was traversed by sutures. A Sims' catheter was kept in the bladder, and the patient made a regular and rapid recovery.

In the paper of Dr. Thomas, embodying the foregoing case, details more or less full were given of seven other cases, not including those collected by Eustache. Of these I have thought it well to reproduce the principal features.

Case 13.—This case occurred in the practice of Dr. Richard Neale, of London, and was published by him in the *Medical Times and Gazette*, November 28th, 1868. The patient had an abdominal tumor. An exploratory incision was made in the middle line from above the umbilicus to one inch above the symphysis pubis. The tumor appeared to be covered with altered serous membrane. Adhesions were found to be so universal that no attempt was made to remove the tumor and the abdominal wound was closed. The next day urine was discovered discharging through the wound, and a long male catheter passed upwards from the urethra appeared at the abdominal incision as high as the umbilicus. It was found that an incision an inch and a half long had been made in the bladder. This was closed by fine wire sutures twenty-six days after the operation, the abdominal wound being reopened for several inches for the purpose. Eleven days afterwards all the urine was passed by the urethra, except on one or two occasions when, in consequence of over-distension the bladder gave way in one spot, which gradually healed. The patient died six months after the operation.

Case 14.—Reported by Dr. Bergman.[4] The operation was undertaken for the removal of a polycystic tumor which could not be extirpated because of adhesions. In cutting through the peritoneum the bladder, which was lying toward the left side of the uterus and between two hemispheres of the cyst was opened. The wound in the viscus was closed with silk sutures, cut short, and then the abdominal incision was closed. Death occurred in thirteen hours.

Case 15.—Dr. B. Stilling.[5] Upon making an incision the operator found no peritoneal cavity, the peritoneum having become everywhere incorporated with the tumor, or the abdominal viscera. The bladder was elongated and pushed over to the left side. It appeared like a cyst between the intestines, and was punctured by the trocar. The tumor, which was subsequently found to be a dermoid cyst of the ovary, could only be partially removed. The wound in the bladder was closed with wire sutures. Death occurred fifteen hours after the operation.

Case 16.—Dr. X. (Reported by Dr. T. G. Thomas.) In this case the operator performed a laparotomy for the removal of a large uterine fibroid. When the abdominal cavity was opened a shining, muscular looking mass was found extending over the tumor and reaching up as high as the umbilicus. The operator, supposing this to be a thick layer of false membrane, peeled it off from above down to the symphysis pubis. Then he discovered that he held one wall of the bladder in his hand while the other was still attached to the surface of the tumor. Having ascertained this he detached the posterior vesical wall, sewed the two together, and removed the underlying tumor. The patient did not rally and death ensued in a few hours after the operation.

[2] Archives de Tocologie, 1880, pp. 193, 277.
[3] Transactions, 1881, p. 267.
[4] Petersburger Medicinische Zeitschrift, 1869.
[5] Deutsche Klinik, for 1869.

Case 17.—Dr. Leroy McLean.[6] Before proceeding to the operation a large aspirating needle was introduced to the left of the median line and a quantity of fluid having the consistency and color of molasses withdrawn. The bladder was then evacuated. The incision extended from an inch below the umbilicus downward two and one half inches. At its lower angle, at a depth of three quarters of an inch, the operator cut into what appeared to be a cyst in the abdominal wall which contained about two drachms of pale fluid. The incision was extended upward and downward, and a multilocular tumor having two strong omental adhesions was removed. It was then discovered that the bladder, which was strongly adherent to the abdominal wall, had been cut through on both its anterior and posterior surfaces. The incisions were closed with interrupted silk sutures, and the abdominal wound with silver wire. The patient was placed in bed, and at the end of an hour two ounces of urine was removed by means of a catheter, which was permitted subsequently to remain in the bladder. The patient rallied and at the end of ten hours her condition seemed favorable. A few hours later, however, she began to sink, and death occurred thirty hours after the operation. Post-mortem examination showed good primary union of the incision in the bladder, no escape of urine into the abdominal cavity, and no peritonitis.

Case 18.—Dr. E. Noeggerath.[7] When the incision was made through the abdominal walls a dense layer of cellular tissue was encountered, but no peritoneum. A trocar was introduced and about a pailful of colloid material with a large amount of fat was withdrawn. The tumor was strongly and extensively adherent to the abdominal walls. The operator cut into a cystic cavity the apex of which reached upwards to within 2½ inches of the umbilicus. Upon examination this was found to be the bladder, which had been carried upwards, and become so attached to the anterior wall of the abdomen as to appear like a portion of the cyst itself. The opening was sewed up with catgut, and the bladder kept empty with a catheter. It was impossible to remove the tumor, owing to the intimate adhesions which existed between the cyst wall and the peritoneum, and which caused them to seem like a single structure. The patient died in twenty-six hours, apparently from acute anæmia caused by hæmorrhage from a soft mass about half as large as a kidney, which occupied one of the pouches of the tumor, and which was accidentally injured. The autopsy showed that there was no peritonitis.

Case 19.—Dr. William Goodell.[8] The operation was for the removal of a large rapidly growing fibroid of the uterus which was found to be extensively adherent. In endeavoring to separate the adhesions the operator made an opening into what was apparently a cyst, but which was soon recognized as the bladder. The organ was an inch or more in thickness, spread over the tumor with which it was incorporated, and reaching as high as the navel. It was separated from the tumor downward to a point sufficiently low to permit the application of a ligature to the tumor, which was then removed. The wound in the bladder was closed with catgut sutures, and the one in the abdominal wall in the ordinary way. The patient died from shock a few hours after the operation.

Cases 20 and 21.—Dr. William Goodell.[9] These cases happened in very difficult ovariotomies, complicated with intraligamentary cysts. In both cases the rent was closed by continuous catgut sutures, and both recovered.

Case 22.—Dr. Gilman Kimball,[10] Lowell, Mass. Operation for the removal of an immense fibroid of the uterus. A ligature could not be applied about the pedicle, and an attempt was made to cut the tumor away piecemeal. About one-half of the tumor was thus removed, during which procedure the bladder was cut into. The patient died.

Case 23.—Dr. Gilman Kimball.[11] The operation was made for what was thought to be an ovarian cyst. When the tumor was reached it was found to be a fibrocyst of the uterus. The stump was transfixed, ligated and dropped. At the end of three or four weeks urine began to escape from the lower angle of the wound. The flow increased, rather than diminished, and the patient died of exhaustion at the end of seven weeks.

Case 24.—Dr. Gilman Kimball.[12] Case of supposed ovarian tumor, but which proved to be a fibrocyst of the uterus. A catheter was used in order to guide as to the position of the bladder. A ligature was applied, apparently safely, above the bladder. In less than a week urine appeared through the lower part of the incision. At the end of four weeks the patient died of abscess of the parotid gland.

Case 25.—(Reported by Dr. Gilman Kimball).[13] The case occurred in the practice of a physician in Providence, R. I., in 1876. The tumor was a fibroid of the uterus, complicated by adhesions in every direction. Two holes were cut into the bladder, both of which were closed with silver sutures. At the end of two or three months the sutures began to discharge from the urethra, rectum, and the line of the incision. The patient finally made a perfect recovery.

[6] Medical Record, February 8th, 1879.
[7] Trans. New York Obstetrical Society, 1880.
[8] Trans. American Gyn. Soc., 1881, p. 274.
[9] Private Letter.
[10] Trans. American Gyn. Soc., 1881, p. 271.
[11] Loc. cit.
[12] Loc. cit.
[13] Loc. cit.

Cases 26 and 27.—Dr. Thomas Addis Emmet, New York. Dr. Emmet states that he has twice cut into the bladder during laparotomy. In both cases the wound was closed with fine silk sutures, and there was no trouble afterwards.

Case 28.—Dr. Geo. W. Porter, Providence, R. I. Operation performed December 16, 1887, for removal of a fibroid in the anterior wall of the uterus. On cutting through the abdominal wall the first cavity entered was the bladder, which had been carried up to within 1½ inch of the umbilicus, a fact of which the operator was not aware before the operation. The bladder was firmly adherent to the anterior abdominal wall, so that after opening the organ it was difficult to discover the limits of the adhesions between the visceral and parietal peritoneum. No urine entered the abdominal cavity. Before going further the operator brought together the walls of the bladder, which were greatly hypertrophied, the muscular layer with a continuous catgut suture, and the serous coat with the Lembert suture. After the bladder wound was closed the abdominal incision was extended upward, but it was found that the appendages could not be removed, as had been intended, and the wound was closed. A soft rubber catheter was left in the bladder for several days. Cystitis followed, but it ceased in about three weeks, and the patient had no further trouble.

Case 29.—Dr. E. C. Dudley, Chicago. In October, 1886, during a laparotomy for colloid ovarian tumor which drew the bladder up nearly to the umbilicus, the viscus was wounded, its walls being incorporated with the tumor. The bladder wound was closed with buried catgut sutures, and the remainder of the wound with deep silver sutures. A further exploratory operation near the umbilicus demonstrated the malignant and irremovable nature of the growth. A sinus remained at the site of the bladder wound through which urine was discharged upon the surface of the abdomen until her death, which occurred seven months later after the removal of the greater portion of the tumor by another surgeon.

To the report of this case Dr. D. adds: "It is my custom to pass a sound into the bladder before opening the abdomen. In this case, however, the pressure of the tumor upon the pubes prevented the sound from passing as high as it might have been passed had I suspected the bladder displacement. I would suggest as the danger signal which should deter one from opening the bladder, the vascular condition of its walls, which always causes bleeding from the numerous small vessels to an extent rarely observed in simply going through the abdominal wall."

Case 30.—Dr. A. J. C. Skene, Brooklyn, N. Y.[14] The operation was one of combined ovariotomy and hysterectomy. The bladder was adherent to the cyst wall, and was dissected away far enough to permit the application of a clamp below the uterus and the most dependent part of the cyst. The uterus and cyst were then removed. After the operation the catheter was used two days, and after that the patient urinated without trouble and passed the usual quantity of water. On the tenth day urine was discovered escaping by the side of the clamp. The catheter was then used at regular intervals, and the patient was not permitted to make any voluntary efforts. The clamp was removed on the fifteenth day. It was then found that the bladder was open on the right side at the site of an adhesion which was the result of a cellulitis and abscess that years before had discharged through the bladder. A year after the operation the patient was perfectly well.

Case 31.—Dr. A. J. C. Skene. The case occurred in a hospital patient, in which an operation was made for pyosalpinx with many adhesions. The bladder, which was covered with adhesions, was opened. The patient recovered, but has a vesico-abdominal fistula which has never healed.

Case 32.—Dr. W. W. Potter, Spokane Falls, W. T.. The operation was done in 1876, for the removal of a fibrocystic uterus weighing over 6 lbs. The tumor was firmly pressed into the pelvis, and adherent to all of the surrounding structures. In separating the bladder from the tumor the wall of the viscus was torn to the extent of 1½ inch. The rectal wall was also perforated in two places. The openings were all closed with silver wire. The bladder wound healed completely, and the sutures came away through the urethra some weeks later. The rectal wounds also healed, one of the sutures escaping through the anus, and the other through the abdominal wound. The patient recovered, and is still alive and well.

Case 33.—Dr. A. Martin, Berlin. Tumor of the ovary with extensive adhesions. The mischief was discovered at once, and the wound closed by silk sutures. The patient recovered without a single bladder symptom.

Case 34.—Dr. A. Martin. A myomotomy with pyosalpinx. In this case the bladder healed at once without any disorder, the patient having free micturition from the moment of the operation. She died from infection by the pyosalpinx.

Case 35.—Dr. A. Martin. Operation for malignant papilloma of the bladder. This was removed and the bladder closed. The patient had free spontaneous micturition subsequently until she died of general carcinosis.

Case 36.—Dr. Paul F. Mundé, New York. Hysterectomy for myoma. The bladder was drawn high up on the tumor, and was injured during the application of the elastic ligature. The bladder wound was sewed together. The patient died of suppression of urine forty-eight hours after the operation.

Case 37.—Dr. James B. Hunter, New York.

[14] Diseases of Women, p. 534.

Operation performed October 22, 1888, for removal of a cystic tumor. The bladder was firmly adherent to the abdominal wall, and was cut directly into at a point in the median line about halfway between the pubes and the umbilicus. There had been a previous operation for diseased ovary by another operator. The wound was closed with catgut. The operation was then continued and a small cyst removed. A catheter was kept in the bladder for a few days. The patient had no trouble whatever from the wound in the bladder.

Case 38.—Dr. Chas. T. Parkes, Chicago. In making the primary incision through the abdominal wall for the purpose of uncovering an undetermined tumor, a cut was made in the bladder about 2 inches long. This was closed immediately by means of the Lembert intestinal suture and gave no more trouble. The urine was taken through the catheter every six hours for a week.

Case 39.—Dr. Chas. T. Parkes. Operation for pelvic abscess. After laparotomy the abscess was aspirated, and then an opening torn into it by expanding the jaws of a forceps. It was not known that any damage was done to the bladder until the urine was taken by catheter some hours after the operation. The fluid withdrawn was mainly blood. The presence of blood in the urine persisted for four or five days, but no other complication arose. The inference made was that the bladder wall had been injured by the forceps.

Case 40.—Dr. Joseph Eastman, Indianapolis, Ind. The operation was done July 4, 1888, for removal of a large ovarian cyst. Extensive adhesions bound the tumor to the abdominal walls and bladder. The latter was opened by the scissors at the lower angle of the first exploratory incision. The opening was subsequently made larger in order to secure more perfect surgical adjustment of the parts, and was 3 inches in length when ready to be closed. Closure was effected by means of two rows of catgut suture. A glass drainage tube was kept in the abdominal cavity for two weeks and a Skene's catheter was kept in the urethra for the same length of time. The patient recovered and suffered no evil effects from the bladder injury.

Case 41.—Dr. Joseph Price, Philadelphia. Operation for removal of an ectopic pregnancy two weeks after rupture of the tube. The tissues were all structurally changed, and friable. The bladder was opened, and the patient died at the time of operation.

Case 42.—Dr. A. C. Bernays, St. Louis, Mo. Operation for removal of a solid fibroid tumor of the uterus weighing 15 lbs. A small puncture was made in the bladder. The edges of the puncture were caught in a Tait's hæmostatic forceps, and secured by a ligature. No evil resulted. The patient died of septicæmia on the eleventh day. At the autopsy the perforations could not be found on examining the interior of the bladder.

Case 43.—Dr. M. D. Mann, Buffalo, N. Y. A supra-vaginal hysterectomy for multiple uterine fibroids. A wire clamp was applied closely to the utero-vaginal junction, and the uterus amputated above. It was then found that a small section of the bladder had also been cut away. When the slough separated urine came from the vagina, and also through the abdominal wound. The os uteri was closed, and later the abdominal fistula also. At first, the bladder held urine only about one hour, but by and by the organ seemed to dilate, and the patient could sleep all night without rising.

Case 44.—Dr. William P. Chunn, Baltimore, Md. Operation done in March, 1888. Operation for removal of an impacted fibroid uterus. The bladder was found adherent as high up as the umbilicus, and was cut open. The bladder incision was enlarged and the whole hand introduced into the organ, when the mistake was discovered. The tumor was irremovable. The bladder was stitched into the abdominal wound in such manner as to bring the cut edges of the viscus and of the abdominal wall respectively in apposition by means of a single row of sutures which were inserted further from the edges of the wound than usual, the object being to cause a wide strip of bladder peritoneum to adhere to a correspondingly wide strip of parietal peritoneum, and thus shut off the bladder wound from the abdominal cavity. A slight fistula remained for a short time, but finally healed, and the patient fully recovered, and became able to urinate naturally.

Case 45.—Dr. T. G. Thomas[15] mentions a case in which, eight days after ovariotomy, about one pint of urine began to pass daily through the abdominal opening, the lower angle of which had been kept open for the purpose of washing out the peritoneum. The patient recovered and the fistula healed of itself.

Case 46.—Dr. Charles Carroll Lee, New York, case of uterine sarcoma. The wall of the bladder, which was very attenuated, was drawn up on the face of the tumor, and was unrecognized and inadvertently cut into. The bladder wound was closed with a lock-stitch of medium-sized catgut, which barely included the edge of the mucous membrane. A Sims' catheter was kept in the bladder during the first three or four days. Complete union was obtained, with no subsequent cystitis.

Case 47.—Dr. Charles Carroll Lee, an ovarian cyst with thick walls, around which there had been much inflammation, became attached to the bladder. In attempting to dissect off the bladder it was opened. The treatment pursued was the same as in the foregoing case, and the result equally satisfactory.

[15] Diseases of Women, p. 264.

Case 48.—Dr. Howard A. Kelly, Philadelphia, Pa., operation done September, 1887, for interstitial salpingitis with pyosalpinx; enucleation very difficult. About two days after the operation stillicidium of urine and fæcal flow began following the track of the drainage tube. For many weeks urine and bubbling gases escaped intermittently, when both ceased entirely and the patient made a complete though tedious recovery.

Case 49.—Dr. Howard A. Kelly, operation of hystero-myomectomy for fibroma, performed November 30, 1887. The uterus, with tumor, delivered through abdominal incision. The bladder was catheterized during the operation in order to determine its position which was elevated on the anterior face of the tumor. It was dissected off with care and the tumor embraced at its base in Kœberle's serre-nœud and cut away, leaving the pedicle treated extraperitoneally with clamp. Within a few days urine escaped from the lower angle of the incision. The opening contracted down to a small fistula which spontaneously closed after a few weeks. The recovery was complete and in no way retarded by the bladder injury.

Case 50.—Dr. Howard A. Kelly, operation June 2, 1888, for removal of several pints of stinking pus in the peritoneum, due primarily to tubal disease. An incision two inches above the symphysis pubis passed through the agglutinated peritoneal coats, half an inch thick, and entered the bladder. There was at once a slight flow of clear water. Beneath this the pus sac was opened, emptied and drained. The bladder injury was not recognized at the time of its occurrence. The patient had a constant flow of urine from the wound until she died, three and a half months later, of meningitis.

Case 51.—Dr. Howard A. Kelly, operation made November 28, 1888, for removal of a large unilocular ovarian cyst weighing about 50 lbs., which had grown in nine weeks. The cyst was densely adherent to the pelvis and was removed with the whole of the omentum up to the transverse colon. During the convalescence the abdomen remained scaphoid, and at no time was there any disturbance whatever due to peritoneal inflammation. The patient was catheterized but once after the operation, and then with great care as to cleanliness of catheter and mouth of urethra. The temperature was normal up to the seventh day, when it went up to 100°. On the following day there passed, with much pain, a slough which appeared to be the mucous membrane of the bladder, two inches long. After this the patient suffered much with vesical pain and passed blood and pus in the urine for two weeks, at which time she had recovered from the bladder trouble, but was taken with fever and delirium, which developed into mania, for which she had to be confined in an insane asylum, where she now is.

Case 52.—Dr. John Homans, Boston, Mass.,[16] operation October 5, 1881. In the removal of a non-adherent dermoid tumor, weighing 22 lbs., the bladder was accidentally incised. A piece the size of a thumb nail was cut off from the elongated fundus, and the viscus split through both its anterior and posterior wall for about two inches. The bladder contained no urine. The organ was considered anomalous, as it had not contracted behind the pubis when emptied. The detached piece was removed. The wounds in the bladder were closed with continuous silk suture, care being taken to not include the mucous membrane in the stitch. A catheter was kept in the urethra. The patient recovered and had no subsequent trouble.

Case 53.—Dr. John Homans, operation for double papillomatous ovaries in a patient who had been tapped eighteen times in five years for removal of ascitic fluid. The bladder was opened and the wound closed with twelve interrupted silk sutures. A catheter was kept in the bladder seven days. In this and the foregoing case the sutures were left shut up in the abdominal cavity. Result, recovery.

Case 54.—Dr. John Homans, on January 22, 1887, hysterectomy for uterine fibroid. A portion of the bladder wall an inch in diameter was included in the serre-nœud. Urine came from the wound for four weeks. A catheter was kept in the bladder.

Case 55.—Dr. G. G. Juliard;[17] during an ovariotomy there occurred a transverse rupture of the bladder 12 centimetres long, in the posterior wall. It was closed with catgut sutures applied after Lembert's method, avoiding the mucous lining. A permanent catheter was employed six days. The cure was complete at the end of three weeks.

Case 56.—Dr. Walter F. Atlee, Philadelphia,[18] operation for removal of cystic tumor of the ovary, which had been tapped four times. The opening of the abdomen revealed a deep red soft tissue, instead of the whitish-blue ovarian cyst. It was the bladder, which was adherent to the cyst wall and dragged up almost to the navel. In effecting the separation of the adhesions the viscus was torn so that the little finger could be passed into the opening, and large gushes of urine were seen to take place into the cavity of the abdomen, although a catheter was used immediately before the operation by an experienced nurse, who said that the bladder was empty, and that she could push the instrument far into the viscus. The bladder wound was closed with a plaited silk thread, which was introduced by means of two needles and brought together in such a manner as to fold inward the edges and bring the peritoneal surfaces into apposition.

[16] Boston Medical and Surgical Journal, February 16, 1882; also Medical Record, January 15, 1887.
[17] Archives de Tocologie, September, 1883, p. 567.
[18] American Journal Medical Sciences, Vol. lxxxv, 1883, p. 119.

The abdomen was then cleansed and the wound stitched and dressed in the usual mode. A self-retaining catheter was left in the bladder two days. There was no further trouble, and the patient made a satisfactory recovery.

Case 57.—Dr. S. C. Gordon, Portland, Me. A laparotomy was made for the removal of an ovarian tumor to which the bladder was attached, and by which it was drawn up. In separating the adhesions the bladder was torn at least three inches. The rent was closed with catgut, the serous edges being turned in. The urine was subsequently withdrawn regularly and no trouble resulted.

Case 58.—Reported by Dr. S. C. Gordon, who says: "This case occurred in the practice of a colleague of mine. The bladder was torn extensively, so that he stitched the sides into the abdominal wound and drained by tube until he could remove the tube, and the fistula finally closed."

Case 59.—Dr. Joseph Taber Johnson, Washington, D. C. During a laparotomy a cut was made straight into the bladder. The wound was stitched up at once and no trouble followed.

Case 60.—Dr. E. W. Cushing, Boston, Mass.,[19] operation done October, 1888, for pyosalpinx and pelvic abscess, attended by intestinal and omental adhesions. The day after the operation urine appeared in the drainage tube, and the urine drawn by the catheter was bloody. No motion of the bowels could be obtained for a week, and then the bowel appeared to have been rent, or to have sloughed, for fæcal matter and gas soon afterwards escaped through the drainage tube. After doing very well for a fortnight after the operation obstinate constipation occurred, followed by violent diarrhœa. The urine then appeared to find its way backward into the bowel. Patient died twenty-three days after the operation.

Case 61.—Mr. Lawson Tait,[20] operation for ovariotomy and hysterectomy at St. Peter's Hospital, Albany, N. Y., September 10, 1884. The uterine pedicle was secured by clamp; a portion of the bladder wall was included with the pedicle, and a vesical fistula resulted. The operator stated to the class before whom the operation was done that it would not make any difference to the patient's recovery, and it did not. The fistula had perfectly healed by November 30, and March 1, 1889, the patient was in excellent health.

Case 62.—Mr. Lawson Tait, ovariotomy with extensive adhesions in a woman aged 55 years; operation performed in June, 1888. A large hole was torn in the bladder, which was stitched up with a continuous suture, and after months of closing the stitch gave trouble; a urinary fistula formed. The patient, who was residing in Italy, appealed to Mr. Tait for assistance. He advised the surgeons to wait no longer, but to open the sinus and remove the stitch. Instead, they allowed the patient to go on suffering until the stitch came away of its own accord, which it did in April last.

Case 63.—Mr. Lawson Tait, operation on April 13, 1889, for a congenital cyst. The bladder was opened by mistake for the peritoneal cavity. The opening was stitched and it healed in the usual fashion, and the patient recovered without any trouble.

In a letter detailing the foregoing cases Mr. Tait says: "I have repeatedly included a portion of the base of the bladder in the wire of the clamp and have never had any trouble with it at all, except that the fistula remains open for a few weeks, but it has always healed. My impression all through has been that a great deal too much is made of lesions of the bladder in operations of the abdomen and pelvis."

Case 64.—Dr. Washington L. Atlee, Philadelphia, Pa. Dr. Robert Battey, in a letter informing me that the accident had never occurred to himself, says: "I have vividly impressed upon my recollection the graphic account given by the late W. L. Atlee, before the Obstetric Section of the American Medical Association, of how, in a complicated ovariotomy, he tore the adherent bladder literally into shreds. I know not whether these statements of Dr. Atlee were ever put into print, but the courage and honesty with which he made the public statement of the case for the benefit of his colleagues elicited both admiration and applause."

Case 65.—Billroth, Vienna,[21] operation for the removal of a large fibro-cystic tumor with the fundus of the uterus. In separating the bladder it was opened. Patient recovered in three weeks.

Case 66.—Billroth.[22] In removing a cancerous left ovary the intestine and bladder were found infiltrated, necessitating enterotomy and cystotomy. Result unknown.

Case 67.—Hartig, operation March 6, 1885, for removal of a non-hæmorrhagic intramural fibromyoma the size of a pregnant uterus at full term. An intended enucleation of the tumor was found to be impossible, by reason of the tumor being located too deeply in the pelvis. The uterus was amputated supra-vaginally by Schroeder's method. In cutting the knot of the rubber ligature a vein was injured, causing profuse bleeding. When the vessel was ligated it was noticed that a portion of the fundus of the bladder, about three-quarters of an inch in length, had been included in the constrictor, and was so thinned by the compression as to need repair. In doing this the bladder was pierced by a needle and a few drops of urine escaped. Repair was made by

[19] Annals of Gynecology, March, 1889, p. 272.
[20] Albany Medical Annals, Vol. vi, p. 1.
[21] R. S. Sutton, letter from Vienna. Pittsburg Medical Journal, January, 1882.
[22] Sutton, Vienna letter. Obstetric Gazette, December, 1881.

running catgut suture in two stages. The patient died suddenly on the fourth day from secondary hæmorrhage, which, as the autopsy showed, came from the wounded vein, from which the ligature had become loosened. The closure of the bladder wound was found perfect.

The foregoing list is by no means complete, but the number of cases it includes—sixty-seven cases among forty-one operators—is sufficiently large to show that the accident is by no means infrequent.

Some surgeons manifest a reluctance to making known the various mishaps which occur in their operative work, in the belief, perhaps, that a knowledge of them will injuriously affect their reputation with their colleagues. I consider this an error of judgment. Surgeons should be honest as well as skilful, and their integrity is quite as likely to receive recognition as their dexterity, and certainly is of more value.

Considering the conditions under which bladder injuries may happen during laparotomy, it is not discreditable to any surgeon to meet with them, for they may not be due to any carelessness or lack of skill on his part. In many of the foregoing cases no possible degree of diligence could have averted the accident. Adhesions of the peritoneal surface of the elongated bladder to that of the anterior abdominal wall frequently cannot be known in advance, and their existence is only demonstrable after the viscus has been opened. The use of the catheter as a diagnostic means is not always available, because the compression of the bladder against the pubis may prevent the introduction of the instrument beyond that point. Certainly, however, this should always be attempted in any case of suspected difficulty, and would seem to be even a proper and unobjectionable routine method.

Another useful precaution is to avoid prolonging the abdominal incision far down towards the pubic bone until the opening into the peritoneum has permitted the relations of the bladder to be ascertained.

The mortality of the cases in which the bladder has been wounded is large, namely about 30 per cent.; but this is due to the complicated and serious character of the cases in which the accident has occurred, the consequently increased length of the operation and the greater danger from shock, rather than to the mere vesical injury. The latter, indeed, does not seem of itself to be very important as influencing the recovery of the patient; but, notwithstanding this fact, a urinary fistula adds greatly to her discomfort, and, occurring under such circumstances, must be productive of chagrin and annoyance to the surgeon.

Inasmuch as the bladder is recognizable with more difficulty when empty than when full, it would be better, in cases presenting doubtful features, to commence the operation with the viscus wholly or partly distended. When its position has become known, after the completion of the abdominal incision, it may be emptied by an assistant.

Treatment.—When it is known at the time of operation that the bladder has been cut or torn, the opening should be at once closed with a continuous suture of catgut or fine silk, applied so as to invert the edges of the wound and bring together the peritoneal surfaces. A permanent catheter ought to be used during the first two days. After the expiration of that time its constant use is usually unnecessary; and if the wound has been small—less than one inch in length—the instrument may be subsequently dispensed with. If, however, the wound has been large—exceeding two or three inches—the bladder ought to be artificially emptied as often as every three hours during three or four days additional. In all cases the catheter should be used so long as the urine contains blood.

In the case in which urine appears through the abdominal wound subsequently to the operation, at a time and under circumstances which might make it dangerous or inexpedient to reach the seat of the vesical injury, the catheter ought to be used either continuously or at short intervals, for the purpose of lessening the amount of urine which escapes through the fistula, and thus aid in the closure of the latter. If, however, the fistulous opening should show no disposition to close after two or three months, the edges ought to be freshened to the depth of half an inch or more and stitched together.

In exceptional instances it may be expedient to affix the wounded edges of the bladder within those of the abdominal incision, in the manner detailed by Thomas and others; but as this method must interfere, to some extent, with the subsequent contractility of the bladder, it is not to be commended as a usual practice. The suturing and "dropping" of the vesical wound is the better method.

THE TEETH AND ORAL CAVITY OF PREGNANT WOMEN.

Read in the Section of Oral and Dental Surgery, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY JOHN S. MARSHALL, M.D.,
OF CHICAGO.

From time almost immemorial, pregnancy has been recognized as having a deleterious effect upon the teeth; and this opinion has become so general that it has been crystallized into the familiar adage—"for every child a tooth." All writers upon obstetrics and the care of pregnant women, recognize the fact that during the periods of gestation and lactation women are more liable to suffer from diseases of the teeth and neu-

ralgia of the facial region, than at other times; but the causes, prevention or mitigation of these diseases has received but little attention; in fact, it seems to be considered by most of them that they are among the inevitable consequences of gestation and that little can be done to relieve them.

With this view I do not fully agree, for I believe *much can* be done to prevent or relieve the suffering incident to caries and the loss of the teeth, and the neuralgic conditions of the face and mouth so common at this period. But in order to appreciate the causes and the treatment of these disorders, we must have in mind the changed conditions of the organism. The pregnant state is characterized by many and varied changes in the general system and in special organs, the most marked of which are those of the uterus, the genitals, and mammary glands, but which it is not necessary for us to take time to describe, as they are generally well understood. The changes which bear the closest relationship to our subject, are those of nutrition affecting the condition of the blood, the bones, the teeth and the excretions and secretions.

Pregnancy usually exercises a favorable influence upon nutrition; after the third or fourth month the appetite improves, adipose tissue is laid on and the body weight is progressively increased, so that at the completion of gestation, it is about one-thirteenth greater than before.[1] Many times, however, the reverse of this is met with; nutrition is so disturbed as to cause considerable emaciation and general debility.

The *blood* is increased in volume during the second half of gestation, as was demonstrated by Spiegelberg and Gescheidlen[2] in experiments upon pregnant bitches. Authorities, however, are not agreed as to changes in the character of the blood. Andral,[3] Nasse,[4] Meyer[5] and others claim that the watery elements and the white corpuscles are increased and the red corpuscles diminished. Ingerslev[6] could detect no diminution in the number of the red corpuscles; while on the other hand Fehling[7] found the hæmoglobin and the red corpuscles increased. Hypertrophy of the left ventricle, of temporary character, sometimes occurs as the result of increased labor thrown upon the heart consequent upon the augmentation of the blood mass. This was first made known by Larcher[8] in 1828. Venous congestion, varices, and swelling of the lower extremities and arterial hyperæmia of the upper half of the body is a frequent accompaniment of pregnancy. The causes of these conditions are not fully understood, but were attributed by De Cristoforis[9] to pressure of the gravid uterus upon the iliac veins preventing the return of blood to the inferior vena cava, and pressure upon the descending aorta, thus obstructing the normal flow of blood to the lower extremities and causing arterial hyperæmia of the upper portion of the body.

Changes in the constituent elements of the *bones* are of common occurrence as a result of malnutrition. Dalton[10] says: "Next to the chloride of sodium, the phosphate of calcium is considered the most important mineral ingredient of the body. It is met with universally in every tissue and every fluid"—and "whenever the nutrition of the bone during life is interfered with from any pathological cause, so that its phosphate of calcium becomes deficient in amount, a softening of the osseous tissue is the consequence, by which the bone yields to external pressure and becomes more or less distorted." Softening or decalcification of the bones undoubtedly takes place in a limited extent in many cases of pregnancy. In fractures occurring during gestation, union is often delayed, sometimes until after delivery. Padieu[11] describes a case in which fractures of the tibia and fibula occurred nine days after the suppression of the menses, and in which union was delayed until the end of gestation. The process of union began ten days after delivery and was completed at the end of a month. On the other hand, the bones of the extremities frequently increase in length, and osteophytes are sometimes formed both intra- and extra-cranial.

According to Förster,[12] in a little more than one-half of the cases of pregnancy examined after death, there were found deposited upon the inner surface of the skull, thin lamellæ of a bone-like formation, composed of phosphate and carbonate of calcium, and measuring from 1/6 to 1/2 of a line in thickness. These formations are most commonly found upon the frontal and parietal bones, in the neighborhood of the sulcus falciformis and the arteria meningia media, and usually occur after the third month. These formations are not, however, exclusively an accompaniment of pregnancy, for they are frequently found associated with tuberculosis, and might therefore be classed as effects of insufficient nutrition, rather than of over-nutrition.

The *pelvis*, though looked upon at all other times as a comparatively solid framework, frequently becomes relaxed in its articulations during pregnancy so that the sacro-iliac and pubic joints become movable. Luschka[13] demonstrated that these articulations were true joints. Lenoir[14] found in twenty-two pregnant women between the ages of 18 and 35, movement of the sacro-iliac and

[1] Hirst's American System of Obstetrics, p. 353.
[2] Ibid., p. 345.
[3] Animals de Chymie et de Physique, Juellet, 1842.
[4] Archives of Gyn. Bd. x, p. 338.
[5] "Untersuchungen uber die Zeianderungen des Blutes in der Schroangerschaft."
[6] Centralb. f. Gyn., 1879, p. 635.
[7] Archives of Gyn., Bd. xxviii, Heft 3, p. 454.
[8] Hirst's Amer. Syst. of Obstetrics, p. 346.
[9] Ibid.
[10] Dalton's Physiology, fifth edition, p. 58.
[11] Journal de Médicine et de Chirurgie pratique, 1887.
[12] Handbuch der patholog. Anat., Vol. ii, p. 945.
[13] Die Anatomie des Menschlicken, Bukens, Tubingen, 1864.
[14] Hirst's American System of Obstetrics, p. 341.

pubic articulations. Occasionally such movement is so great as to make locomotion difficult or impossible.

Lawson Tait[15] is authority for the statement that the *thyroid gland* frequently increases in size during pregnancy, and that he noted in districts where goitre was endemic, and in women in whom there existed the predisposition, pregnancy may produce a temporary form of the disease or furnish the exciting cause for the development of the permanent disease.

The *spleen*, in all probability, is increased in size during gestation.[16] The functions of the *kidneys* are also heightened and in consequence of this they become somewhat larger.[17] The urine undergoes change both in quantity and quality; the aqueous elements are increased in consequence of the augmentation in the blood mass and the high arterial tension. Winckel found no change in the amount of urea, sodium chloride, sulphates and phosphates daily excreted. Chalvet and Barlemont, on the other hand, found the chlorides increased in quantity and the phosphates, sulphates, urea, uric acid, creatin and creatinin diminished in amount. Lehmann and Donne[18] have suggested that the cause of this deficiency was due to the extra demand for these substances in the development of the fœtus. Glucose and albumen are not infrequently present in the urine during pregnancy. An increase in the *salivary* secretions is often a noticeable symptom. *Ptyalism*, when present, manifests itself early and usually disappears spontaneously between the third and fourth months. It occasionally persists, however, in an aggravated form during the entire period of gestation and even for several weeks after, and the amount secreted may be so great as to endanger the life of the patient. The qualitative changes in the saliva during pregnancy are sometimes quite marked. The water is increased, while the organic and inorganic elements are diminished. Schramm reported one case in which the ptyalin was entirely absent. In those cases in which excessive ptyalism is manifested the buccal mucous membrane is more or less inflamed, the parotid, submaxillary and sublingual glands are swollen and tender, and quite painful when their functions are especially excited. Fetor is not present, and the absence of this symptom distinguishes it from mercurial ptyalism. The cause of this disorder is in all probability a reflex neurosis, and it frequently reappears in successive pregnancies. *Gingivitis* is another common accompaniment of pregnancy, and is often present when there is no indication of salivation. Pinard is of the opinion that it is more common among multiparæ than primiparæ. This opinion is based upon seventy-five cases, of whom forty-three were multiparæ and thirty-two primiparæ. In the former the disorder was present thirty-one times, in the latter fourteen times. Gingivitis is characterized by redness and tumefaction of the gums, and a tendency to bleed on slight pressure or friction, as in mastication or the use of the tooth-brush; while the secretions of the mucous gland are often decidedly acid in reaction, as may be easily proved by litmus paper. Treatment should consist of saline cathartics and astringent and antacid mouth-washes, and thorough cleanliness of the mouth and teeth.

Phagedenic pericementitis is occasionally present during pregnancy, and right here let me call your attention to the fact that this disease is often associated with rheumatic affections, diabetes mellitus and albuminuria, but just how it is associated in relation to cause and effect with kidney affections, I am unable to say, but would suggest that it is due to the accumulation of effete products in the system, possibly of uric acid, urea and the like. This disorder is characterized by tumefaction of the gums, which have a purplish tint along the margins, the festoons are swollen and detached from the teeth, and bleed on the least provocation; many of the teeth are loose in their alveoli, from which pus constantly exudes, and in a majority of the cases examination of the roots of these teeth will show them to be more or less covered with calculus, the character of which is still in dispute, some claiming it is salivary, others serumal. After a little time the gums begin to recede from the necks of the teeth, and it is not by any means rare for this disease to progress so rapidly that one or more teeth are lost by the disorder before the completion of gestation. The disease usually persists after delivery, but not with such rapid progress as before. Treatment consists in removing the deposits from the affected teeth, incising the gums down to the bottom of each pocket to give drainage for the escape of the discharges, the application to the parts of a saturated solution of iodine in wood creosote, and the use of astringent and antiseptic mouth washes.

The changes in the *nervous system* due to the effects of pregnancy are many and varied, the character being determined largely by the individual susceptibility of the patient to nervous irritation. As a rule, the emotions are more easily excited than at other times. Some are bright and happy, others despondent, moody or peevish. Functional disorders of the special senses are not infrequent, vision may be impaired, the hearing affected, or perversions of taste and smell may occur. Neuralgic affections are quite common during pregnancy, and most frequently affect the face and head. Odontalgia, tic douleureux, local anæsthesia and paresis are the most common forms.

Odontalgia is generally the result of dental caries which penetrates to the pulp and sets up an

[15] Obst. Jour. of Great Britain and Ireland, 1875.
[16] Wood's Handbook Medical Sciences, Vol. vi, p. 5.
[17] Hirst's American System of Obstetrics, Vol, i, p. 334.
[18] Ibid., Vol. i, p. 354.

acute or chronic pulpitis, or may be caused (as recently stated by Dr. W. W. Allport[19]), by hyperæmia of the pulp, due to the augmented volume of blood, increased arterial pressure and capillary hyperæmia of the upper half of the body. In proof of this statement by Dr. Allport, I would call attention to the fact that a brisk cathartic will often relieve, or entirely control an attack of odontalgia, or a congestive headache, by simply relieving general arterial tension and local hyperæmia of the parts by depleting the circulation; this relieves the blood pressure upon the nerve filaments of the pulp or the meninges of the brain, and the pain ceases. Tic douloureux, local anæsthesia and paresis of the facial region are generally considered to be due to a reflex neurosis, but the point made by Dr. Allport is worthy of careful consideration. Odontalgia due to pulpitis can be controlled by devitalizing the pulp, and the tooth be made permanently useful by appropriate after-treatment; a temporary stopping is all that should be attempted until after delivery if the attack occur during the latter months of gestation, but in the earlier months there need be no fear, in a majority of cases, in performing a permanent operation if it be not too fatiguing.

Nervous disorders due to the changed condition of the system during pregnancy usually disappear soon after delivery, but they occasionally persist during lactation. The treatment of neuralgic conditions of reflex origin, and nervous disorders in general, should be relegated to the family physician, as they need general treatment and therefore come more especially within his province. Quinine, iron, or other general tonic treatment, however, is indicated, with change of climatic surroundings.

The statement has been made that softening and decalcification of the bones takes place to a limited extent in certain cases of pregnancy, but whether the change is due to a failure of the nutritive processes to supply the waste constantly going on in all the tissues of the body, or an actual resorption of the inorganic materials to supply these elements to the forming fœtus, I am unable to state, but am of the opinion that it is the result of both faulty nutrition and the lack of supply of the proper elements to the system. In some cases it is certainly the direct result of faulty nutrition incident to the pregnant state. In others inability to take food, as in those cases where for months the stomach is in such an irritable condition as to make it impossible to retain sufficient food to properly nourish the body; while in others it is the result of an improper diet.

Many women are in the habit of discarding from their aliment during pregnancy all those foods which contain an abundance of calcium salts, and restrict themselves, as nearly as possible, to a fruit diet, believing that by such practice the bones of the child will be imperfectly calcified, and thus parturition will be robbed of much of its suffering. There is no scientific evidence that such a result is obtained; while on the other hand, as in those cases affected with hyperemesis, though the child when born may be small and much emaciated, it has the appearance of being properly formed and its bones as dense as in the majority of normal pregnancies, and the fact seems to be pretty well established that the osseous framework of the fœtus is formed in such cases at the expense of the maternal organism.

We have no knowledge that a chemical analysis has ever been made upon the teeth of the same individual before and during pregnancy in cases like those just described; and without such an analysis it could not be dogmatically asserted that there was or was not a quantitative change in the inorganic materials of the teeth, but reasoning from analogy, we would expect to find the same conditions existing in the teeth that are undoubtedly present in the bones, and brought about by the same causes.

Clinical observation would seem to substantiate such a proposition, for every observing and thoughtful dentist of even limited experience could relate cases in which a material and an appreciable softening of the dentine occurred during the pregnant state of many of his patients. This condition is an important predisposing cause of caries, and is often present in adults and in school children of both sexes, as a result of overwork, anxiety or excessive mental strain.[20]

The principal exciting cause of caries during pregnancy, as in all other cases, is the ever-present lactic acid fermentation, but its action is greatly augmented by the changed conditions of the salivary and buccal secretions. The acids found in the secretions of the mouth as a result of the disorders incident to the pregnant state, are acetic, hydrochloric, uric and oxalic. Consequently in those cases where the dentine has been rendered abnormally soft—deficient in calcium salts—there is likely to be a very rapid breaking down of tooth structure during pregnancy and lactation.

Long tedious operations, like the restoration of form in decayed teeth with gold, are inadmissible during gestation. All operations upon the teeth at such times should be as free from pain and fatigue as is possible, from the fact that in certain cases miscarriage might be the result. Caries of the teeth can be arrested by the use of temporary fillings like Hill's Stopping, or oxy-phosphate cement, until such time as the patient is in condition to bear the nervous strain incident to large gold operations. Among the most valuable of preventive measures are a thorough and frequent use of the tooth-brush and floss silk at least three

[19] Paper on "Neuralgia," read before the American Medical Association, June, 1889.

[20] Jacob L. Williams, Journal Am. Med. Assoc., 1885.

times per diem, supplemented by tooth powders, and antacid mouth washes.

I am aware that I have not discussed this subject as its great importance would seem to deserve, and had time permitted, I should have been glad to have elaborated many points that have been only just alluded to. I trust, however, that some of these points may receive more extended treatment in the discussion that shall follow.

"The Argyle," cor. Michigan Ave. and Jackson St.

DRAINAGE IN ABDOMINAL SURGERY.

Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY CHARLES BINGHAM PENROSE, M.D., Ph.D.,
OF PHILADELPHIA.

Drainage of the peritoneum, though one of the most important subjects in abdominal surgery, is yet one which still stands in a most uncertain position. The reason of this uncertain position is primarily a dread of evil consequences from the tube; a fear that the tube will act as a source of septic infection and death. Other less important reasons militate against the use of the drainage tube, but collectively they have but little weight when compared with the terror, which most surgeons feel, of introducing a dangerous element of septic infection in any case where a drainage tube is employed.

As long as this fear exists the abdominal drainage tube can never be viewed in a proper light. And it is one of my chief objects in presenting this paper, to attempt to place the subject in a more scientific position, by showing how groundless all such fears are, if the drainage tube is properly used.

But little light on this subject can be obtained by investigating the practice of noted operators. A very few operators—as Olshausen—altogether discard the abdominal drainage tube, asserting that it is in no case necessary. (*Die Krankheiten der Ovarien*, 1886.) Others—like Bantock and Tait—use drainage freely and with confidence, never allowing fear of evil consequences from the tube to affect their decision about its use in any case. Others—and perhaps the largest body—occupy a medium place; they dread the tube, but sometimes feel obliged to use it, because they dread more sepsis from absorption of undrained fluids in the peritoneum. The last hold a most unsatisfactory and a most unscientific position; and probably have the largest mortality after their operations.

If one surgeon, or class of surgeons, can use the abdominal drainage tube in a long series of cases, with a very small mortality—a mortality no greater than occurs in the same hands in a similar series of undrained cases, it certainly proves that the drainage tube properly used is not a source of danger. And it follows from this, that, if other surgeons have a much greater mortality when the tube is used than when it is discarded, the reason is that they do not employ the tube in a proper way.

The important point to observe, in the use of the abdominal drainage tube, is frequent and careful cleaning. Cleaning which can be performed by any neat nurse. If the statistics and practice of different operators are observed, it will be found that, in most cases, a large mortality and infrequent cleaning of the tube go together. We often are advised to make the first inspection of the tube not earlier than twelve hours after the operation—in some cases twenty-fours hours. An investigation of cases subjected to this plan of treatment will, by the mortality, show, unquestionably, the value of frequent cleaning. I will refer to one striking illustration of the truth of this remark. There appeared recently a paper on drainage in which the writer says, "the first inspection of the tube for fluid need rarely be made earlier than twelve hours after the operation." He then gives his mortality in a series of drained cases as over 50 per cent. Compare this advice and these statisics with those of Bantock, who operated without a death on a series of 45 drained cases in the Samaritan Free Hospital, and who advises that the drainage tube be cleaned every two or three hours; (*British Medical Journal*, June 30, 1888). Or with the statistics of Joseph Price, of Philadelphia, who uses drainage in about 50 per cent. of his cases of laparotomy, with a mortality as small as in the undrained cases, and who cleans the tube from every one to three hours. In my own practice, I have operated for disease of the uterus or its appendages, on 40 successive drainage cases with one death. I frequently have the tube cleaned as often as every half hour: and in introducing it, I think of it no more as a source of danger, than if I introduced an extra suture in the abdominal walls.

Many similar statistics could be given, which show that, in some hands, the drainage tube adds nothing to the mortality after laparotomy, and consequently that when it seems to increase the mortality, the cause is to be sought in the method of using the tube, and not in the tube *per se*.

No fixed time can be set for cleaning the abdominal drainage tube. It should always be cleaned when it is filled with fluid, and sometimes it is filled fifteen minutes after the patient has been returned to bed. By cleaning I mean the thorough emptying and drying of the tube, and the introduction of a fresh capillary drain if one is used.

Our object, after most cases of laparotomy, is to dry, as quickly and completely as possible, all the peritoneum beyond the neighborhood of the tube; and to do this the outward flow should be

as free as possible. Such, however, is not the case when the drainage tube is full of fluid, for the intra-peritoneal accumulation is then subject to a backward pressure equal to the weight of a column of liquid four to six inches in height. A pressure, in cases where there is no distension, sufficient, not only to stop the outward flow, but to cause a backward percolation of fluid between non-adherent intestinal loops. Therefore, to favor rapid occlusion of the general peritoneum from the sink in the hollow of the sacrum, and from the drainage tube tract, frequent cleaning is of the greatest importance.

I do not hesitate to say that, if a drainage tube is frequently inspected, and if all manipulations are performed with the strictest cleanliness, a patient, after laparotomy, is as safe, if not safer, with a tube than without one.

If we admit this fact, that a drainage tube in the abdomen need not be looked upon as a source of danger, we are in a proper position to decide the question: In what cases is drainage necessary?

The object of the drainage tube is the prevention of accumulations of fluid in the peritoneum. The dangers to be feared from such accumulations are septic changes, which may produce general or local trouble. These changes, if not pre-existing, are generally caused by septic matter introduced from without; but it is also very probable that infection may occur through the intestinal walls; especially if the intestinal coats are in a pathological condition from over-distension or other cause. At the same time, it must be remembered that the healthy peritoneum is a very rapid absorber; and large quantities of fluid may be absorbed before sufficient time has elapsed for septic decomposition to take place. A very rough idea of the absorbing power of the healthy human peritoneum may be obtained from experiments on dogs and rabbits; and, if we calculate proportionally for man, we find that the human peritoneum can absorb from five to twelve pints of fluid in one hour, or, in from twelve to thirty hours, a quantity equal to the body weight. (*Der Krankheiten der Ovarien*, von Robert Olshausen, 1886.)

Cases demanding drainage can be arranged under the following heads:

1. Where the operation has been of long duration and there has been much manipulation, and we fear excessive secretion from the irritated peritoneum.

2. Where extensive raw surfaces, or bleeding adhesions are left, or where we fear bleeding from any other cause.

3. Where there is existing peritonitis, or ascites.

5. Where septic matter has escaped into the peritoneum, or where portions of tumor are left.

5. Where there is a malignant disease, and we fear subsequent infection.

By excessive secretion from irritated peritoneum I mean more fluid accumulation than can be reabsorbed before septic changes take place. And, in this connection, we must consider, not only whether the peritoneum is in a condition to absorb fluids, but also whether the patient's condition is such as to stand such absorption; whether the emunctories are sufficiently active to excrete the absorbed material. For this reason drainage of the peritoneum is much more frequently indicated in old, than in young people.

No absolute rules for drainage can be given; and consequently there is always room for a difference of opinion in any case which comes under the preceding headings. The irritated peritoneum may not secrete excessively; or the blood from adhesions may not be too great to be absorbed, but if, in any case, there is a particle of doubt about such points, the drainage tube should be unhesitatingly used.

The drainage tube is not only of service in draining blood from the peritoneum, but, in cases where excessive bleeding is feared, it serves as an important indicator to the operator. It not only itself, for some reason, seems to act as a valuable hæmostatic, but it also enables the surgeon to detect undue hæmorrhage in time to check it. In three cases Tait has controlled hæmorrhage by the injection of perchloride of iron through the tube. (*Brit. Gyn. Journal*, August, 1887.)

The necessity for drainage depends to a great extent upon the operating surgeon. Skill, rapidity and neatness in operating, by diminishing exposure and irritation of the peritoneum, enable many surgeons to do without drainage in cases which would demand it in other hands. And for this reason the practice of no one operator can be taken as a guide. Every surgeon must determine for himself whether drainage is necessary in any case, and it is much safer for him to use the tube too frequently rather than too rarely.

I have thus far spoken only of one tube, not because we need to be limited to one drainage tube in abdominal surgery any more than in other branches of surgery; but because the great majority of abdominal operations are done for disease of the ovaries and Fallopian tubes, and consequently the seat of operation is altogether in the pelvis, the upper part of the peritoneal cavity being generally entirely undisturbed. For this reason, in such cases, the single straight glass tube drains not only the hollow of the sacrum—the natural sink of the peritoneum—but also the whole field exposed in the operation. But in other cases, as in general purulent peritonitis, it may be necessary to drain, in addition to the hollow of the sacrum, the renal gutters, or other parts of the peritoneum. And if the tubes are used, not only for drainage, but also for subsequent peritoneal irrigation, the use of two or

more tubes, placed wherever indicated, is of great value.

In some cases it is desirable to use a tube combined with a capillary drain of gauze or wick, or even gauze or wick alone, placed in strips from the cavity or part to be drained to the abdominal wound.

Capillary drainage is in many instances a most desirable method; possessing the advantages of promptness, thoroughness and complete exclusion of air; at the same time giving entire rest to the patient and to the parts surrounding the drain; and permitting more movement of the body. In such cases wicking answers better than gauze, since it acts as a faster drain, and is less liable to become incorporated with surrounding tissues, and thus render removal difficult. These drains can remain in place for several days—as many as ten or fourteen—if the superincumbent gauze is frequently changed and the discharges are not septic to begin with.

For discussion of this subject with report of cases see article by Ludwig Piskachek, *Medizinische Jahrbücher*, neue Vol. iii., Jahrgang, 1888.

The determination of the length of time during which the general peritoneum remains open to drainage is of importance in discussing the use of the abdominal drainage tube. Theoretically, an aseptic, unirritating drainage tube ought never to become shut off by adhesions from the general peritoneal cavity; since peritoneal adhesions imply more or less irritation. The length of time, therefore, during which the tube acts as a general drain depends on the condition of the tube and the character of the discharges, which are carried throught it. Tait (*Brit. Gyn. Journal*, August, 1887) says that irrigation of the peritoneal cavity through the drainage tube becomes impossible, on account of adhesions, seventy or eighty hours after operation. And this is probably the usual time in clean cases. That this time, however, is subject to very considerable variations, is shown by the following cases, which have occurred in my own practice.

In a case of purulent peritonitis where laparotomy was performed, and peritoneal irrigation was practiced through three tubes placed in the abdominal cavity, general drainage, and the possibility of general irrigation, ceased to exist twenty-two hours after the introduction of the tubes. (This case is reported in *Annals of Gynecology*, 1888.)

In a case of stab wound of the transverse colon, when the patient died of cerebral embolism seventy-six hours after laparotomy, the autopsy showed that there were no peritoneal adhesions around the tube, the peritoneum being dry and the tube perfectly free.

In a third case, of dermoid tumor, where general peritonitis appeared three days after laparotomy, the discharge from the drainage tube, which had for two days been very slight, suddenly increased, and for five days later large quantities of sanguinolent serum flowed continuously; showing that much of the peritoneum was still open to drainage even seven days after operation. A singular phenomenon occurred after an operation by Dr. Baldy of Philadelphia. Abdominal hysterectomy was performed for a uterine myoma. Ascites was present at the time of operation, and for eleven days afterwards from one to three pints of serum flowed daily from the drainage tube.

These cases are sufficient to show that the duration of general drainage depends to a great extent upon the nature and treatment of the case.

As has been said the chief immediate danger to be feared from a drainage tube is septic infection or septic peritonitis, and I have attempted to show how slight is the risk of such infection if proper care is taken of the tube. There are, however, other accidents, or sequelæ imputed to drainage, which, though not of immediate danger to life, are yet at least annoying, retarding convalescence, and in some cases, if uncured, ultimately causing death. And a fear of these minor dangers is often sufficient, in case of doubt, to turn the decision of the surgeon against the drainage tube.

Such accidents, or sequelæ, are:

1. The formation of local peritoneal adhesions around the drainage tube, and the persistence of a fibrous band in the site of the tube tract, which may cause subsequent bladder trouble, or intestinal strangulation.

2. The incarceration of omentum, or shreds from adhesions, through the perforations of the tube.

3. Prolonged suppuration from the drainage tube tract, or an incurable sinus.

4. Fæcal fistula from pressure of tube on intestine.

5. Ventral hernia resulting from imperfect approximation of fascia and muscles.

I will consider these real and imaginary sequelæ of drainage in the order in which they have been stated. Though local peritoneal adhesions may be more frequent in drainage cases, yet I have never observed that these patients complained subsequently of symptoms indicative of such adhesions, any more than patients in whom no tubes had been used. These adhesions generally disappear very quickly; and this is also the case with whatever fibrous band may follow the tube. Of course a discharging sinus, especially if an old one, exists as a firm organized structure, extending from the origin of the sinus, to the parietes; but even such tracts disappear after they cease to discharge. In order to cure ventral hernia, I have had an opportunity of reopening the abdomens of two patients in whom drainage had been used; and have consequently been able to determine the existence of any ad-

hesions or fibrous band which might have been produced by the drainage tube.

In the first case the primary operation had been done for double pyosalpinx and peritonitis. The glass drainage tube had remained in the abdomen for three days, being replaced by a rubber tube which was used for several days longer. The second operation, for the relief of the resulting hernia, was done two years later. The omentum was then found slightly adherent in the hernial sac; but there were no other peritoneal adhesions of any kind. The finger, introduced to the hollow of the sacrum, found no adhesions and no trace of the drainage tube tract.

In the second case, the primary operation was done for extra-uterine pregnancy. The glass drainage tube had remained in the abdomen for eight days, and was then replaced by a rubber tube which was used for two weeks longer. After removal of the rubber tube a discharging sinus remained unclosed for about three months. Here, more than in the first case, I expected to find some pelvic adhesions and some trace of the old drainage tube tract and the resulting sinus. When, however, the ventral hernia was operated on, eighteen months after the primary operation, there was no trace of a fibrous band or of any peritoneal adhesions beyond the omentum, which was very slightly adherent to the neck of the sac.

Incarceration of omentum or shreds from adhesions is not an uncommon accident even when the perforations of the tube are not of undue size. It may be avoided by occasionally lifting or rotating the tube after cleaning. When, however, the accident has occurred, it is necessary, in order to remove the tube, to cut off the incarcerated tissue with a long knife, or other instrument introduced through the tube.

Prolonged suppuration from the drainage tube tract results, in most cases, from the breaking down of tissue which had not been removed at the primary operation; from an infected ligature; from syphilis; and from tuberculosis. The abdominal drainage tube of itself does not cause the sinus any more than does a drainage tube in other parts of the body. The sinus is the result of some pathological condition at the bottom or sides of the drainage tube tract, and frequently occurs after laparotomy even when no tube had been used. If it is due to either of the first two causes—unremoved morbid tissue or an infected ligature—it will close of itself when all foreign matter has been removed. And it is fortunate for the patient that it remains open until such removal has taken place; since otherwise accumulation would occur within the abdomen. It is not an unusual thing to be obliged to reopen an abdomen in order to evacuate pus pockets formed around infected ligatures, or unremoved morbid tissue. A sinus caused by syphilis can of course only be closed by antisyphilitic treatment. Such a sinus existed in the second case of ventral hernia to which I have just referred.

When tuberculosis is the cause, the sinus generally will not close until all tubercular tissue has been removed. Two such cases have occurred in my experience: in one there was tubercular salpingitis, and tuberculosis of the lumbar lymphatic glands; in the other there was tubercular salpingitis with general tubercular peritonitis. In each case there still exists a ventral sinus.

A danger always to be feared from an unclosed sinus is the ultimate production of a fæcal fistula, and when a sinus persists, attempts should be made, even by a subsequent laparotomy, to remove the cause.

Fæcal fistula caused by pressure of the drainage tube on the intestine is by no means an imaginary danger; occurring most frequently when the tube rests on a diseased area of the bowel—such as may be left after the separation of peritoneal adhesions. This accident can be avoided by the frequent lifting of the tube after cleaning, or its replacement, after some hours, by a shorter and smaller tube.

There are certain cases where we always fear subsequent leakage of fæces. Where the outer intestinal coats have been torn in the separation of adhesions, or where a part of the bowel wall is in a doubtful, lowly vitalized condition, from adhesion to a suppurating tumor, or abscess cavity. And it is in these cases that the large glass drainage tube serves a most valuable purpose by providing for the free evacuation of fæces if any should escape from the intestine. This accident is not uncommon and is sometimes unavoidable, and often the fæcal discharge, though at first composed of all the contents of the intestine, will subside as the patient recovers until all passes by the natural way.

The last sequelæ of drainage to which I have alluded is ventral hernia. The drainage tube, by preventing perfect approximation of muscles and fascia, undoubtedly to a certain extent predisposes the patient to subsequent ventral hernia. The accident, however, is not a very common one, having occurred, in my own experience, in about 5 per cent. of the drainage cases. And it must not be forgotten, in this connection, that hernia also occurs when no tube has been used.

When hernia follows laparotomy it can always be cured, safely and easily, in a subsequent operation, by the thorough exposure of the recti muscles and the fascia, the complete removal of all cicatricial tissue, and suturing as in any case of primary laparotomy.

In conclusion, I will very briefly repeat the chief principles which I have attempted to impress in this paper:

1. The abdominal drainage tube, properly used, does not increase the mortality after laparotomy.

2. Confidence in this fact is necessary for a correct determination of cases requiring drainage.

3. Frequent careful cleaning of the tube is of the greatest importance.

4. The few annoying sequelæ attending the use of the drainage tube can be avoided or easily cured.

5. It is safest to use the drainage tube too often, rather than too rarely, as we would in case of doubt use any other precautionary measure.

RECOVERY FROM SYMPATHETIC OPHTHALMIA INDUCED BY A SARCOMA OF THE CHOROID.

Read in the Section of Ophthalmology at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY F. C. HOTZ, M.D.,
OF CHICAGO.

Mr. M., aged 56 years, a robust man of regular habits, noticed in August, 1887, a gradual failing of the sight of his right eye; and by the end of September the sight was entirely extinguished. Up to that time he had no pain or unpleasant feeling in or about his eye; but during October he had frequent paroxysms of violent pain in the blind eye and extending over the right side of the head.

October 29, after a very severe attack of this headache, Mr. M. called for a consultation, and the examination of the eye showed the following conditions:

"Slight œdema of the upper lid; fulness of conjunctival and episcleral veins; hazy and lusterless cornea; shallow anterior chamber; pupil immobile and dilated *ad maximum*; lens transparent, but vitreous absolutely impenetrable for light; T. +3: no perception. L. E. V. = $\frac{20}{20}$ with + 2 D.; normal fundus."

As the sight had been slowly and painlessly extinguished before any of those violent symptoms of glaucoma appeared, it seemed most likely the glaucomatous state was caused by an intraocular tumor. The removal of the eye, therefore, was urgently advised, but as usual, the patient was not prepared to accept this advice at once. However, after he had gone through a few more and exceedingly severe attacks of hemicrania, he became very anxious to be relieved of the source of his suffering; and November 5 the eye was enucleated; the instruments were disinfected with carbolic acid (5 per cent.); the eye and lid was washed with sublimate solution (1:5000); the wound was closed with aseptic silk and dusted over with iodoform.

Neither on the day of the operation nor on the two following days when I visited the patient at his house, anything unusual could be noticed in the external appearance of the left eye; nor was there any particular occasion for using the ophthalmoscope on those days, as the patient did not observe any disturbance of the sight, and described the feeling in his left eye as perfectly natural. As the healing progressed very satisfactorily the patient was instructed to call at the office in two or three days. He did not come until November 12 because the right eye was doing well; but since two days, he said, the left eye had been getting red, sensitive to light, and the sight seemed to grow a little dim. This was found to be true, V. being only $\frac{20}{30}$; slight pericorneal injection; clear cornea and anterior chamber; pupil of medium size; numerous posterior synechiæ which however were all easily broken by a few instillations of duboisine. When the pupil was fully dilated its field presented a very peculiar appearance under focal illumination. In the center there was a clear area exactly corresponding in size and form to the form of the pupil before duboisine had been used. The outline of this clear space was marked by a circle of very fine brownish dots (pigment from the synechiæ), and beyond this circle the anterior surface of the lens was covered with a film made up of innumerable thin and short fibres of a light brown color, irregularly curved and bent and promiscuously mixed together into a loosely woven network. Plainly visible though this film was by focal light, it offered surprisingly little obstruction to the ophthalmoscopic examination by which no disturbance in the vitreous and fundus could be detected. Under the use of duboisine the pupil was kept dilated and the pericorneal redness slowly disappeared; but otherwise no change occurred during the next ten days. In the night of November 24 a fire breaking out in the neighborhood, the patient stood for a long time at an open window to watch the fire and was thoroughly chilled. The eye became very red, painful and tender to the touch. All these symptoms, however, had subsided under warm fomentations and absolute rest in the dark room, when in the night of December 9, the patient accidentally gave his eye a severe blow with the finger.

In the morning (December 10) his sight was so poor that he could not recognize any one near him; conjunctiva of the lower lid red and swollen; copious secretion of mucus; much pericorneal injection; cornea streaked with interstitial opacities; lower part of iris swollen and dull, and the pupil not as fully dilated as before. Cocaine was used in addition to duboisine; and the eye improved so that December 17, the cornea was again clear and bright; V. good; and the fundus which could be seen very well with the ophthalmoscope, showed normal appearance. But this favorable condition did not last long; for on December 20 it was recorded "the pericorneal injection increasing; cornea streaky; dense exudate along lower border of pupil." And from that day the eye became worse every day; the cornea very cloudy; iris swollen, pupil

smaller, and eyeball tender to the touch; and finally the tension showed an appreciable increase. The eye seemed doomed; for an iridectomy under these circumstances promised no good; and without it the pupil would be closed by the inflammation, and the sight destroyed by the increased tension. What should be done to ward off the terrible fate—this was the question I anxiously sought to answer while sitting by the patient's bedside. I carefully scrutinized every symptom and the changes in the eye from day to day. Now duboisine had been used all this time, and when with the increase of the inflammation the pupil showed a tendency to contract the mydriatic was applied more frequently; but I quickly perceived that the oftener it was instilled the worse the eye seemed to do; and I soon persuaded myself the unfavorable course the eye had been taking, was probably caused by the mydriatic. Its use was, therefore, stopped at once and the artificial leech was applied to the temple; and in two days the most alarming symptoms had disappeared, and the pupil instead of getting smaller remained as large as it was originally before any mydriatic was used, and has retained this size to this day.

After the duboisine was discontinued the eye never showed so serious and alarming symptoms, although all through the months of January, February and March it showed frequent attacks of slight corneal and iridic inflammation, to counteract which I relied exclusively on leeches which were applied alternately to the temple and to the neighborhood of the inner canthus. So telling was the immediate effect upon the appearance of the eye that the patient's wife, who proved an excellent nurse as well as a good observer, noticed it at once, and several times when she saw the pericorneal injection return she applied leeches with the desired success without first waiting for my order. They were applied at least a dozen times and not in one single instance did they fail. Just to give an illustration of their prompt action, I will copy the memorandum for January:

January 6, 1888. Eye slightly redder, and watery; pain over eyebrows; but Tn. Leeches.

January 7. No pain; redness almost gone.

January 13. Pericorneal injection increasing since yesterday; cornea getting hazy and iris dull. Leeches to nose.

January 14. Injection very faint; cornea clearer; iris brighter.

January 19. Since yesterday eye red again; cornea duller. Leeches.

January 20. Less redness; cornea brighter.

January 22. Injection again increasing.

January 23. Eye still more irritated, getting quite tender. Leeches.

January 24. The eye quite comfortable; injection greatly dimished; cornea much brighter.

In February and March the free intervals grew longer and after the beginning of April the eye remained free from irritation. By April 14 the cornea had cleared up so that an ophthalmoscopic examination (the first since November) could be obtained; it showed a normal fundus. But the test of the sight brought another surprise, inasmuch as the eye which before had a H. $\frac{1}{7}$, now showed M. $\frac{1}{36}$; V.$=\frac{20}{40}$; and while then it required + 12 for reading, now + 18 was the best reading glass.

At the last examination, February 29, 1889, the same degree of M. $\frac{1}{36}$ V. $\frac{20}{40}$ was found. This remarkable change of refraction from H. to M. might have been brought about in two ways: either the whole lens might have been pushed forward, or the convexity of its anterior surface might have been increased. The latter presumption seems to me the more plausible explanation; for we can well imagine that the long continued inflammation of the pars ciliaris choroideæ had resulted in a permanent contraction of the ciliary fibres, by which the tension of the zonula was released and the lens allowed to become more convex. The appearance of the iris seemed to indicate that such changes had occurred; for its periphery was decidedly retracted so that the "filtration angle" was much larger than under normal circumstances, while the bulk of the iris stretched over the anterior surface of the lens like a tight-fitting glove, was so strongly convex that it formed a very sharp angle with the retracted periphery. The tension was normal; lens and vitreous were perfectly transparent and the fundus presented a normal appearance.

And here is another interesting point. If the tension of the vitreous chamber is controlled by constant flow of fluid from that cavity through the zonula into the aqueous chambers, how can we account for the fact that tension remained normal in this case, when the drainage was completely blocked by the iris being firmly glued to the anterior capsule of the lens? Is it possible that the filtration at the optic disc, which under ordinary circumstances seems to be very insignificant, may have become more active when the ordinary route was obstructed?

To complete the history of this case I have to give a brief report of the examination of the enucleated eye. It contained a large melanotic sarcoma springing from the nasal side of the fundus, and filling the larger portion of the vitreous chamber. Forward the growth had advanced to the ciliary ring; outward it was just on the point of breaking through the sclera, and backwards it reached to a line 6 mm. from the optic papilla. The nasal half of the choroid had entirely disappeared in the tumor; the temporal portion exhibited all signs of an intense plastic cyclo-choroiditis. The retina was completely detached and the vitreous, of course, gone. Under the micros-

cope the tumor showed the well-known structure of round-cell sarcoma with an abundance of pigment cells; in places these prevailed to such an extent as to form deep black spots. The papilla and optic nerve were not invaded by the sarcoma and showed no structural changes; the sheath of the nerve was swollen and its connective tissue contained numerous new cells; the intervaginal space was greatly distended and filled with fibrine and lymph cells.

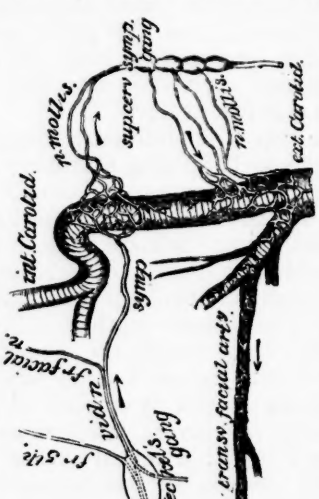
In conclusion I wish to say that although the sympathetic inflammation became manifest after the enucleation, it would be contrary to all our experience to assume a causative connection between this operation and the sympathetic affection. There is no case on record in which the symptoms of a sympathetic iritis were so fully developed, as in this case, five days after an injury or an operation. And I suppose if the eye had been examined between the second and fifth day the first indications of the inflammation would most likely have been noticed even at that time.

THE RELATIONS BETWEEN ACNE AND DISEASES OF THE NASAL CAVITY.

Read in the Section of Dermatology and Syphilography at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY CARL SEILER, M.D.,
OF PHILADELPHIA.

I bring before you, gentlemen, a subject which should be of a great deal of interest to you all as dermatologists, and it is of particular interest to me as a rhinologist. It has been my fortune, or perhaps misfortune, during the last ten years to observe a large number of cases of acne among the better to do class of people whose ages ranged from fourteen to fifty years, and I have noticed that the acne has borne a certain relation to the condition of the nasal chambers, becoming worse with a head-cold, gradually disappearing as the nasal irritation has disappeared, finally becoming entirely well when the nasal disease was cured, and that too without any external application or internal treatment. I made this observation, as I have said, in a large number of cases, and about eighteen months ago I made mention of the fact in a communication to the county medical society of Philadelphia. The point I would like to raise here (as of course I cannot teach you anything about acne, about its varieties, the treatment, etc.) is that acne punctata is almost always associated with atrophic rhinitis, while acne rosacea is almost always associated with hypertrophic rhinitis. You know that the nerve supply of the nose is intimately connected with the vaso-motor system, coming as it does from Meckel's ganglion and being distributed to the skin of the face, neck, etc. Again, you also know that there is a large amount of erectile tissue in the nose though opinions differ as to its function. I hold that the erectile tissue has two functions. Its function in the penis is, of course, evident, but not so with that in the clitoris, vulva, or nose. Still, it must have a function, and I think it is that of a safety-valve or overflow, to relieve local congestion or venous turgescence in the surrounding parts. For instance, through emotional excitement the penis becomes erect. The mental influence acts upon the vaso-motor system, increases the blood supply in that part, and the erectile tissues of the penis receive the overflow. In the same way the capillaries of the nose, face, and neck are easily dilated, as is observed in the blush of shame or blush of any kind. If there were no overflow, or if the overflow were interfered with, a continued congestion would result, and it would, of course, centre mostly around the glandular tissue. The distribution of the nervous supply of these parts is very interesting, and I hope to picture it in a chart.



SCHEMATIC REPRESENTATION OF NERVES, ETC., INVOLVED IN THE PRODUCTION OF REFLEX SKIN RASHES OF THE FACE.

In this diagram *afferent sympathetic fibrillæ* (symp.) are seen leaving the middle turbinated process to join Meckel's ganglion, whence they accompany the *vid. n.* through a part of its course. On leaving it they shortly join the carotid process on the *int. carot. art.*, from which they issue to enter the *supr. cervl. symp. ganglion.*

Efferent sympathetic fibrillæ, having a vaso-motor function, pass with the *nervi molles* to the branches of the ext. carotid. One such is traced by means of arrows to the congested area of skin on the face.

The argument in the context is that impressions following the *afferent* route to the ganglion are reflected along this *efferent* route as vessel-dilator waves to the area of integument exhibiting the condition of hyperæmia-erythema.

Acne usually appears about the time of puberty. At that time the involuntary erectile tissue is not yet fully developed. The influence of the nervous system is necessary for the development of the erectile tissue of the genital organs and elsewhere. In the meantime turgescence of the capillaries of the face takes place, the overflow is not taken up by the erectile tissue in the nose as this has not yet developed, and acne results. The appearance of acne in boys who practice masturbation, and its increase a day or so after the act is probably well-known to you all. I have observed it in a number of instances.

Another fact pointing to this etiological relation is the failure to relieve acne at this period as we have been led to hope by dietetic measures. I may say in conclusion that I have found little aid in my studies of this subject because of the very limited amount of current literature on acne.

DR. CORLETT asked Dr. Seiler whether he referred the acne to the nasal affection, or the nasal affection to the acne, the connection being a reflex one.

DR. SEILER said his belief was that the acne was caused both by the reflex influence of nasal irritation and the mechanical congestion which was not relieved by the erectile tissue of the turbinated bones. In other words, the influence was both nervous and mechanical.

DR. CORLETT thought the paper was a very interesting one, and said that besides being able to trace some cases of acne to derangement of the digestive system, he had also seen it appear in persons predisposed to it during irritation in the genital tract, as in gonorrhœa, and in boys after masturbation. He recalled one or two instances in which boys had assured him their outbreak of acne was due to masturbation.

DR. BRUSH inquired of Dr. Seiler whether he had not noticed a relationship between irritation of the genital apparatus and rhinitis.

DR. SEILER thought it was an undoubted fact that one erectile tissue was influenced by an affection of another. Thus when there was expansion of the erectile tissue of the genital organs it invariably produced dilatation of erectile tissue of the nose, particularly when congestion in the nose already existed, thereby making the rhinitis worse. It was a neurotic element which started the circle; the mechanical interference manifested itself in turn. He then had a patient with atrophic rhinitis and acne punctata. By care and treatment he could clear the acne up completely, but it would return as soon as he lost sleep, drank, and began masturbating.

DR. BULKLEY had often had patients with acne who also had some nasal trouble, and he had tried to induce them to go and have the disease of the nose treated, but they had not followed his advice. There might be a great deal in what Dr. Seiler had so well said.

The thanks of the Section were extended to Dr. Seiler and his paper was requested for publication.

FOREIGN PRACTITIONERS IN FRANCE.—One of the reasons assigned for the more careful examination of the qualifications for medical practice presented by foreigners in France, is the discovery of a diploma mill, located in Bennington, U. S., which is said to issue bogus diplomas at prices varying from $60 to $300.

THE REQUIREMENTS FOR PRELIMINARY EDUCATION IN THE MEDICAL COLLEGES OF THE UNITED STATES AND CANADA.

Abstract of the Report of the Committee, read at the Thirteenth Annual Meeting of the American Academy of Medicine, held at Chicago, Ill., Nov. 13 and 14, 1889.

BY J. E. EMERSON, M.D.,
OF DETROIT, MICH.

The report opened with the statement that it was the acknowledged inadequacy of preliminary education that furnished reason for a committee to report upon the subject.

Ideal preliminary educational equipment for the study of medicine had been sufficiently discussed by Drs. Gerrish and Connor at the meeting of the Academy in 1888. On their aspect of the question there was practical unanimity of opinion among the fellows of the Academy. All hoped for the day when every matriculant in an American medical college must have received the degree of Bachelor of Arts, Science or Philosophy.

It went on to say that the sources of information upon which it was based were primarily the annual official announcement of the medical schools, supplemented by the last annual report of the Illinois State Board of Health, and also carefully compared with the statistics compiled by Dr. W. G. Eggleston, of Chicago, and published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

It pointed out discrepancies in the results obtained from these two sources, as possibly explained by lack of candor on the part of some of the deans or secretaries of the medical schools.

The origin of many medical schools being solely for the personal preferment of the originators and the enhancement of their professional reputation and practice, and their continued existence being dependent on the fees received from students, no appeal to higher motives can successfully antagonize the purely selfish and mercenary motive that dictated their origin and governs their policy. The only motive likely to prove successful was the enforcement of State laws similar to the Illinois State medical law, which would make their diplomas worthless unless they enforced more stringent preliminary educational tests.

The number of medical schools in the United States is 121, of which three give only a preliminary course and do not grant diplomas. Fourteen are homœopathic, ten are so-called eclectic, three are physio-medical, and ninety-four are so-called "regular" schools.

Of the ninety-four "regular" medical schools, twenty-three have no obligatory preliminary examination for matriculation; four require only evidence of "fair" or good English education; fifty-five require an examination in the branches of an English education, or accepts, as an equiv-

alent, a diploma of a high or normal school, or of an Academy, or a first grade teacher's certificate, or the certificate of a regularly organized county medical society. Three of these require deficiencies in Latin to be made up during the course; nine require an examination in English branches and Latin, or accepts the diplomas and certificates as mentioned above as an equivalent; one of these accepts as an equivalent for Latin a knowledge of German, French, or Scandinavian. Two require an examination in English branches and Latin, or accepts, as an equivalent, the diploma or matriculating certificate of a college, or of a school of arts, science or of mining. These are the Harvard Medical School and the College of Physicians and Surgeons of New York.

Of the fourteen homœopathic schools, one was shown to require an examination in English branches, or a certificate of graduation from some reputable school. Eleven require an examination in English branches, or the diploma of a high school, normal school or academy. Two require an examination in English branches and Latin; these are the medical department of Boston University and the homœopathic medical department of the University of Minnesota. The homœopathic department of this last university has the same requirements as the "regular" medical department.

Of the ten so-called eclectic schools, one requires a common school education; nine require an examination in the English branches or the diploma of a high or normal school or academy, or a teacher's certificate.

Of the so-called physio-medical schools, two require the usual examination in English branches or the diploma of a high school or academy, or a teacher's certificate. One was wholly disreputable, apparently.

Thus, of all the medical schools of the United States but thirteen require any preliminary knowledge of Latin, and twenty-three have no obligatory preliminary examination for matriculation.

The twelve medical schools of the Dominion of Canada not only require a much higher standard of preliminary education, but there is also a successful attempt to make the requirements practically uniform throughout the Dominion.

The medical matriculation examination of the McGill University Medical School may be given as an example of the medical matriculation of *all* the Dominion medical schools: 1. English language, including grammar and composition. 2. English history. 3. Modern geography. 4. Latin, including translation and grammar. 5. Mathematics, including arithmetic, algebra and geometry. 6. Elementary mechanics. 7. An option, either French, German, Italian or Greek, logic, botany, elementary chemistry. Degrees in arts received from any university in the provinces or Great Britain (*not* the United States) procure exemption from matriculating examinations.

Comparing the requirements of the Canadian with those of the American medical schools, one feels a humiliating sense of inferiority.

The practical question now arises, what can we as an organization do to hasten the dawn of a better era? No doubt evolution and the survival of the fittest will in the end bring order out of chaos; but we believe in the capacity of individuals to measurably direct and hasten this desirable process. We have a noble example set us in the person of the Secretary of the Illinois State Board of Health. It will not be enough to enact stringent medical laws in our various States, however much that is needed as a preliminary step; we must, in addition, have men to watch over and insist on the rigid enforcement of adequate laws with all the indefatigable zeal of which so rare an example has been afforded us.

MEDICAL PROGRESS.

A NEW METHOD OF MERCURIAL TREATMENT.—G. GAERTNER and S. EHRMANN, of the Medical Faculty of the University of Vienna, report their experience in the application of mercury by means of an electrical bath. For this purpose a bathing tub was constructed with two compartments, one above the other, separated by a diaphragm. The diaphragm adapts itself almost hermetically to the human body. The walls and floor of the tub are covered with electrodes (plates of copper or zinc) which are covered by perforated wood. The covering of one of the compartments is placed in contact with the positive pole; that of the other with the negative pole of the battery. Between the two compartments there is no other communication than that of the human body, the diaphragm being constructed of an insulating substance and the water of the two compartments only communicating by openings almost capillary in size, and hence the resistance here offered is so great compared with that of the human body that the amount of current which passes through the water may be disregarded. It may then be apparent that almost all the current, the intensity of which is measured by the galvanometer, passes through the body, and this indeed has been confirmed by exact measurement.

The advantages of this double bath are the following:

1. The strength of the current is equal in all parts of the skin immersed in the water.

2. Weak or strong currents may be used.

3. One is able to measure exactly the intensity of the current passed through the body.

The authors have lately made use of this bath as a means of introducing certain remedies, particularly sublimate, into the system. The arrangement is so convenient that first one half of

the body and then the other may be submitted to the action of the positive electrode. As an example of what has been accomplished in this manner the authors cite several cases, among them the following: A slender young man who had never been subjected to mercurial treatment was placed in the electric bath, the lower positive compartment of which contained 4 grm. of sublimate. The intensity of the current employed was 100 milliampères, the duration of the bath fifteen minutes. In the first twenty-four hours following the bath the urine contained considerable mercury; on the fourth day it amounted to 7 milligrams.

In all the experiments made the skin of the patients was absolutely intact, a fact easily ascertained, inasmuch as the least excoriation is manifested in the electric bath by a lively sensation of heat. It is beyond doubt that the mercury was introduced into the system by other means than by simple absorption. Furthermore, it is to be remarked that mercury appeared in the urine upon the day of the bath, proving that it quickly reached the vascular part of the integument. The advantages claimed for this method of treatment are:

1. The mercury is introduced through the skin as in the methods of injection and inunction, whereby accumulation in the digestive canal and liver is avoided.

2. Almost the entire cutaneous surface is subjected to the action of the mercury, and it is possible that it exerts a local action upon the germs contained in the skin.

3. The quantity of mercury introduced is proportionate to the intensity and duration of the current, thus permitting an exact measurement of the amount of the medicament absorbed.

4. The method is painless, cleanly and unattended by danger.

The authors have undertaken a series of therapeutical experiments including the application of iron by this method.—*L'Electrothérapie.*

Compression of the Thorax in Pleurisy.—Clinicians differ materially in opinion regarding the real cause of the pain of pleurisy. Friction of the inflamed surfaces of the pleura does not account for all cases, and some are of the opinion that it is explained by an involvement of the intercostal nerves. It is well known that patients seek to relieve themselves by changes of position, some finding ease by assuming a decubitus upon the affected side, while others prefer the dorsal position, and others, still, choose to lie upon the healthy side. R. Roth has experimented with the mechanical treatment of pleuritic pain, and has found that bandaging of the thorax is very agreeable to the patient. He employs a bandage of cotton 6–7 cm. wide, with which he envelops the thorax during expiration. In some cases it appears as though the bandage exerted a positive curative effect. In some cases, where the circular bandage is not well borne, relief may be obtained by covering the affected half of the thorax, during expiration, with broad strips of rubber adhesive plaster, which prevent too great distension of the thorax on that side.—*Corres.-Bl. für Schw. Aerzte.*

Rare Tumors of the Breast.—Dr. Dudley P. Allen, of Cleveland, reports a case of carcinoma in the breast of a man 50 years of age. The right side was first affected, but at present there is a line of nodules extending across to the opposite side. The left nipple is retracted. The right breast is the seat of a phagedenic ulcer of large size. The glands of the left axilla are enlarged. Tissue removed from the indurated border of the ulcerating surface presents, upon microscopical examination, the most typical appearance of carcinoma.

The second case was that of a chronic ulcer of the breast in a woman. The external appearances were those of carcinoma. An operation for the removal of the supposed cancer was begun, when an escape of pus revealed the true character of the cases.—*Medical News*, Sept. 14, 1889.

The Treatment of Uterine Fibroids by Electricity.—Dr. L. Danion, in a communication to the Congrès de Chirurgie, draws attention to the dangers attending the electrical treatment of uterine fibroids. He has collected four cases in which cysts were mistaken for fibroids, and death resulted from the treatment. He refers to other fatalities occurring in his own practice as well as in the practice of others, not excepting Apostoli, and quotes the opinions of English and American surgeons as to the danger of the treatment. The electrical treatment, in his opinion, however, has become dangerous only because it has included certain useless practices. His conclusions are as follows: The electrical treatment of fibroids should be in the hands of electro-therapeutists, for they alone are able to accomplish, with electricity, all the service which it is capable of rendering. An exact diagnosis is necessary; in case of doubt advice should be sought from an able surgeon. When the indication for the treatment has been established, the intra-uterine electro-caustic application should never be made, as it is useless and dangerous unless the object be a positive caustic action in the case of a well-determined lesion of the uterine mucosa, in which circumstance it is better to dilate when with patience the application of electricity alone will often be sufficient. Do not make punctures, for they are useless and dangerous. If the cervix is accessible, apply an electrode with a small surface and one that cauterizes laterally always at one and the same point. A current of from 50 to 80 milliampères is sufficient. If the cervix is

inaccessible, apply the method with the electrical tampon (a tampon covered with a sheet of caoutchouc except at its extremity). By this method a current of from 120 to 130 milliampères can readily be employed. Do not forget to reverse the current. If phenomena of excitation or congestion are witnessed, moderate the intensity of the current, especially that of the reversed current. Proceeding in this manner, one can readily obtain, without pain or accident, the best results that can be expected from electro-therapy, such, indeed, as will often surpass one's expectations.—*L'Electrothérapie.*

SACCHARIN IN COMMERCE.—The Public Sanitary Council of Hungary, by direction of the Government, has promulgated the following judgment respecting the use of saccharin: It is necessary and desirable that saccharin be excluded from commerce as a food or luxury, and for the following reasons:

1. Because it is not sugar, although by reason of its name and taste it may be made to pass with the public for sugar.

2. Because it possesses no nutritive properties, its physiological value as a food being *nil* in comparison with sugar.

3. Because its prolonged use leads to digestive disturbances.

4. Because its cheapness may lead to its substitution for sugar, as has occurred in other countries.

There is, however, no objection to its being prescribed as a medicine.

In Italy the manufacture and importation of saccharin has already been forbidden by ministerial decree, and its therapeutical application regulated by various limitations.

It is surprising that at the Paris exposition saccharin should have received the award of a gold medal.—*Corres.-Bl. für Schw. Aertze.*

EXALGINE.—In a discussion on exalgine in the Congrès International de Thérapeutique, M. BARDET reported on the results obtained in the Hôpital Cochin. From an examination of seventy-five observations he concluded that exalgine possesses remarkable analgesic powers, particularly in congestive and dental neuralgias and in congestive migraines with pain above and below the orbits. He found it important, however, to employ real exalgine; that is to say, the *methylacetanilide* which melts at 101°, because the isomers do not possess the same properties. Thus in England there is a product sold under the name of exalgine which is *aceto-orthotoluid*, a very different substance in a therapeutic sense, as it is inactive, while even in the dose of 0.40 centigr. exalgine produces marked effects.

M. Féréol said that he had not obtained results equally favorable with those reported by M. Bardet; he had often been obliged to discontinue the remedy without having relieved pain, and in some cases he had observed cyanosis from its use. He prescribed it in the amount of 0.50 centigr. per day.

M. Desnos said that if the previous speaker had not obtained desirable results from the use of exalgine it was because the dose employed was too small. He himself administered as much as 1.50 grm. in twenty-four hours and had secured relief in very severe cases of neuralgia; he had, however, also observed cyanosis from its use.

M. Dujardin-Beaumetz summarized the advantages and disadvantages in the use of the remedy. On the one hand, in many cases it removes pain and relieves obstinate neuralgias; on the other hand, when one is obliged to employ a large dose and continue the use of the remedy for some time, phenomena of vertigo make their appearance, and although these are unattended by danger, they require attention; furthermore, exalgine is insoluble. Exalgine in his opinion is a useful agent, but is inferior to antipyrin.—*Le Bul. Médical.*

GANGRENE OF THE INTESTINE FROM THROMBOSIS.—PINNER reports the case of a strong, healthy man, aged 50 years, who was suddenly seized with symptoms of an acute gastro-intestinal catarrh, accompanied with vomiting and purging. The diarrhœa ceased after a little, but the vomiting continued whenever food was taken. On the third day symptoms of collapse appeared, with subnormal temperature, tenesmus and a slight discharge of fluid blood. Death occurred on the fifth day. The autopsy revealed thrombosis of the inferior mesenteric artery where it is given off from the aorta; hæmorrhagic necrosis in the colon, especially in the cæcum, but to a moderate degree in the hepatic and splenic flexure; the sigmoid flexure and rectum free; moderate peritonitis.—*Centr. für Chirurgie.*

BILLROTH ON THE TECHNIQUE OF RESECTION OF THE INTESTINE.—At the last meeting of the Versammlung Deutscher Naturforscher ŭ Arzte, VON EISELSBERG remarked, in reference to resection of the cæcum, that Billroth, after several unfortunate results in his cases, had resorted to a new method of operating. He found, indeed, that when it became necessary to unite the lower end of the ileum with a transverse section of the ascending colon an angular union sometimes formed, as a result of which in two cases there was complete stenosis of the gut. Billroth, therefore, closes up the lower end of the colon entirely and, making a longitudinal incision higher up, joins the ileum at this point, and with the best results, for by this plan the natural relations are preserved, the ileum being at right angles to the colon.

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PRECISION IN DIAGNOSIS.

The power to correctly interpret the manifestations of disease is above every other a prerequisite to the successful practice of medicine. During the last fifty, and more especially during the last twenty-five years, the means of investigation have been so improved, and the advances in the study of pathology have been such, that former and even present methods of teaching must of necessity be greatly modified.

Never before were there such possibilities presented for the attainment of correct conclusions as to pathological conditions, and never as now were men able to make such critical studies, both of the causes and of the manifestations of disease. No longer may medical men simulate the blind giant who went beating about, and killing whatsoever he chanced to hit. The physician's better directed blow should fell the disease and not the man.

To the careful study of pathological conditions and to the correct interpretation of their manifestations, are we most indebted for the wonderful advances which have recently been made in medicine, and along these same lines lie the pathways of successful progress in the future, and no student may hope for permanent success in his profession, who does not bend his energies to the attainment of the best methods as they are being placed at his command of investigating diseases. Simple didactic instruction was well in its time, and it served its purpose, but its day is well-nigh past, and its methods must give place to others that are better. It is self-evident that the medical schools best equipped in the matter of chemical and physiological laboratories—those which offer the most approved facilities for microscopical investigations, and who mostly train their students at the bedsides of patients in the hospitals, are to be the successful schools of the future, and that those who fail in these respects will assuredly, as they should, go to the wall.

But our present purpose is not so much to indicate methods of teaching, or to urge upon students the necessity of thoroughly utilizing the best means of instruction, as it is to impress upon the minds of medical men already in the field the absolute necessity of making their individual cases matters of critical study, and of habitually training themselves to the attainment of utmost skill in medical and surgical diagnosis.

Medicine to-day is not so much in peril at the hands of any outward foes as it is from wounds inflicted in the house of its friends; and to attempt the practice of the healing art, without due preliminary preparation coupled with the most considerate study of cases to be treated, is not simply a misdemeanor, but a crime.

In these days of inconsiderate haste, the danger with medical men is imminent that they imbibe the same spirit and fail to exercise due diligence and patience in the study of their cases—that they shall fail of precision in diagnosis and, as a necessary result, grow reckless in their methods of prescribing.

The danger is that, by reason of failure to apply themselves diligently to the study of diseased conditions, and to the exercise of critical methods of examination and the attainment of definite conclusions, physicians shall begin to retrograde from the day of their graduation until they help to swell the vast throng which gives hindrance rather than help in the onward progress of the healing art.

We doubt if there be a single man that reads this article, who is fully satisfied with his own habits in these respects. We doubt if any of our practitioners have achieved their ideals of success in medical diagnosis, We are constantly working along the border line, uncertain of what may be discovered and of that which is unknowable.

Much that was deemed beyond our grasp is now within control. New facts are coming to the light which have important bearings upon the interpretation of diseases and upon the prac-

tice of the healing art, and there should be no students in our profession so diligent as those to be found among our graduated physicians. The literature of the day, replete with the experiences of other men, is at the one hand, and the sick and the suffering, with all their vital expressions of medical truths, are on the other, and only he who, walking in the midst of these, can thoroughly utilize their teachings for the good of men, has right to the path wherein he treads.

The paramount condition to successful medical practice must ever be that of precision in diagnosis. It is in some sense a gift, as are the powers of critical and correct discernment; but nevertheless it is largely a matter of education, and its rewards only come to those who are the patient, vigilant, tireless students of diseases in all their various manifestations. Let the diagnosis be clearly formulated before any prescription is made.

SANITARIA FOR THE CONSUMPTIVE POOR.

The curability of pulmonary tuberculosis is an established fact. Yet so small is the percentage of cases in which this fortunate result is attained that one may be excused for taking a pessimistic view of the disease in general, particularly when he contemplates the consumptive poor of our large cities. JACCOUD has set forth admirably the conditions favoring a successful management of this destroyer, and if one will study these he can not but be impressed with the utter hopelessness of their attainment by the poor. Climatic treatment plays such an important rôle that even consumptives whose means enable them to command every resource may be said to wage a hopeless fight if they remain in their city homes. What, then, awaits the patient who depends for existence on his daily labor, or that of brother or sister earning but a few dollars a week? Even when he can afford the attendance of a family physician his outlook is cheerless. The weapons which the skill of the pharmacist has placed at his command are costly. He can ill afford to procure the various forms of concentrated nourishment and the preparations calculated to aid his disordered digestion, and in most instances has to do without them. Then his circumstances deprive him of proper nursing, so that, as a rule, his fight is a losing one. Think, then, of that still more unfortunate consumptive who frequents the dispensary or outdoor department of some hospital. If taken in hand in the incipiency of his disease, and he be able to procure and assimilate sufficient nourishment, then, by the judicious use of tonics, hypophosphites, cod-liver oil, creosote, etc., there may be hope of arresting the mischief. If, on the contrary, he be far along, with a racking cough, hectic, night-sweats, anorexia and, perchance, diarrhœa, there can be but small chance of obtaining more than euthanasia. His home environment is generally against him, and the whole condition of his life such as counteracts the benefit of the most wisely directed treatment. Such a case is truly pathetic, and compels pity from even the stony-hearted.

It is for such sufferers who die by thousands in our great cities, that the plea is made for the sanitaria or hospitals devoted to the care of the consumptive poor. There are many, though perhaps not enough hospitals for the reception of surgical cases and cases of acute non-infectious disease, but there is a dearth of institutions of the kind herein meant where phthisical patients can be received and kept until death or recovery ensues. Four reasons suggest themselves for the speedy establishment of such infirmaries.

1. It is an eminently deserving charity that should appeal to the benevolence of the charitable.

2. Prolonged residence in such a resort affords for the consumptive poor the best, it might almost be said, the only chance of successfully combatting this disease. A phthisical patient should have every act of his life, every breath he draws or mouthful of food he eats, his exercise, his rest, in a word all his habits regulated by a skilled physician. And only in a well conducted institution can he be thus managed. Of the encouraging results that can be accomplished by such sanitaria witness those of Europe, notably Goebersdorf and Frankinstein in the inclement climate of Germany.

3. If there be anything in the theory of communicability of tuberculosis, then every consumptive who dwells in our crowded and unsanitary tenement houses is a source of contagion. And since it is out of the question to stamp out the disease by summary means, such measures for isolation and treatment as can be taken are incumbent on the State as a means of prophylaxis.

4. Although experimentation upon such pa-

tients would not be the aim of such an institution, still there would be afforded excellent opportunities for the trial of remedies and methods of treatment that promise well and if not successful are at least devoid of harm. In such ways humanity might be greatly benefitted.

Such are some of the considerations that commend these institutions to the humane and public-spirited.

Physicians wield great influence in the State, and they have better occasion than the laity to appreciate the evils of this widespread destroyer. Therefore it is to be hoped that their influence will be exerted in their respective communities for the establishment of such sanitaria.

EXAMINATIONS FOR APPOINTMENT IN THE UNITED STATES ARMY.

We publish elsewhere in the present number of THE JOURNAL a notice of the meeting of an Army Medical Board, which will be convened during the month of May next in the city of New York, for the examination of candidates for appointment in the medical corps of the United States army; and in order that those who purpose to make applications for such examinations may be fully advised with reference to the medical department and the requisites essential to appointment therein, we append a circular of information prepared by Surgeon-General Moore, which very fully conveys the needed information.

Of many things we, as Americans, have reason to be proud, but we cannot boast of large standing armies. The patriotism that burns in the breast of every true American is our best guaranty of protection to every American interest. At peace among ourselves and in accord with our environments, we have no need to lay upon ourselves those burdens of taxation which must be incident to the maintenance of vast military organizations. No emergencies can rise in the future greater than those which have arisen in the past; and the fact has been demonstrated, as we profoundly hope may never again be needful, that when a crisis shall demand, armies fully equipped in every detail can be summoned at once to the field, and that their medical department can be as quickly developed to any needed extent; hence the present demand is limited.

The records of our medical officers in the past have commanded a world-wide respect, and such is their present repute that positions in the Medical Department were never more inviting than now.

The conditions essential to success are such that any applicant may esteem himself specially honored if he shall attain to an appointment in the medical corps, and we heartily commend this notice to the attention of aspiring young men.

EDITORIAL NOTES.

HOME.

MEDICAL DIRECTOR HUDSON, U. S. N.—The death of Medical Director Adrian Hudson, M.D., U. S. N., has been announced to the department at Washington as having occurred February 7th at Mare Island Hospital, California, at the age of 53 years. He was sick only five days, his attack beginning as influenza and eventuating in pneumonia of an intractable type.

THE AMERICAN PHYSIQUE.—Dr. J. B. Hamilton, of the Marine Hospital Service, is quoted by the Boston *Medical and Surgical Journal* as deprecating the slight attention paid in this country to a proper development of the physique. In an address before the Georgetown Medical College on "Ancient and Modern Physical Culture," he illustrated his subject by an estimate that not one-third of our population of the military age would be able to pass the physical examination of the recruit.

ACADEMY OF MEDICINE, NEW YORK.—Dr. Francis Delafield, recently elected to the chair of the Section on the Theory and Practice of Medicine in the Academy of Medicine, made his inaugural contribution in the form of a summary of his experience with pneumonia in epidemic influenza. He holds that four grades of pulmonary inflammation may be defined. There is a light grade, requiring almost no treatment, and a severe kind, which resists every treatment. Between these two others appear, generally having marked bronchitic symptoms, but differing in gravity by reason of the amount of consolidation which takes place in the graver of the two types, and by reason of the prolonged period of resolution in the solidified areas.

THE LATE PROFESSOR MILLER.—In the death of Dr. Edward Miller, of Louisville, a bright light

is early extinguished. Although only 48 years of age, he had attained to the position of Professor of Surgery in the Louisville Medical College, as well as to the editorship of the *Medical Herald*. He was the son of the late Dr. Henry Miller, President of the Association in 1859. The cause of his death has been ascribed to cardiac failure supervening upon an attack of epidemic influenza; the date of his demise was January 20th. *The American Practitioner*, writing in generous vein, says of Dr. Miller: "He was a man of uncommon talent and large learning, whose death vacates a place in the ranks of medical practice, education and journalism which it will be difficult to fill."

THE ILLUSTRIOUS DEAD.—At the recent Lincoln anniversary dinner held in Brooklyn, in answer to the sentiment, "Lincoln and his chosen State," Surgeon-General Hamilton paid a brief but eloquent tribute to the names and memories of Lincoln, Douglas and Logan, closing with these words: "Lincoln lies buried near the shores of the Sangamon; Douglass, by the limpid lake; Logan's dust will shortly be borne to its last resting-place near his favorite city, in soil made sacred by the memory of its illustrious dead; and for ages to come it may seem to the living that the sighing winds, passing from their resting-place on the lake to his on the beautiful river, are carrying tender messages of sympathy and love."

FOREIGN.

A LARGE FIELD FOR FEMALE PRACTITIONERS.—Two American lady-physicians have made a marked impression in China. One of them by her aptitude for surgery has astonished them: she resides at Shanghai, but the name is not given in the telegram which has come to us by way of London. Another lady, Dr. King, has won her way into high official circles and it is said she has even been consulted privately by the dowager-Empress, who has had pulmonary tuberculosis.

DR. THOMAS' BOOK IN CHINESE.—Another medical work by an American professor has been reproduced in the Chinese language, namely: Dr. Thomas, of New York, on Diseases of Women. There are five volumes in the Chinese translation. The general appearance of the work is satisfactory, but the illustrations are rather rudely done. This work will undoubtedly be a great help to those who are engaged in infusing the new education in the high official circles of that Empire. It may even be one of the means of hastening the downfall of the antiquated methods that have so long resisted the medical reforms coming from abroad.

PERILS OF FOOTBALL.—A recent number of the London *Lancet* had a list of seven casualties reported to it during the previous week from various parts of England. One of these was attended by a fatal result, and one of the correspondents remarked inquiringly if it would not be expedient to revive the enactment of the Scottish King James, who in 1524 decreed fifty shillings fine against any person who should be caught playing football.

PROF. E. LEYDEN.—Almost a quarter of a century has elapsed since Prof. E. Leyden was appointed director of the medical clinic in Königsberg. His pupils therefore have prepared to celebrate this event on the 6th of April, the intention being to present him with a memorial address and an album of photographs, as well as to erect a bust of the professor.

MEDICO-NAUTICAL SCHOOL.—The French minister of marine has introduced a plan for the establishment of a medico-nautical school in some city where there is already a State faculty. This school is to be connected with the schools in the ports of Brest. Rochefort, and Toulon. Since 1828 the marine sanitary corps has been reorganized eight times. Three cities are now contesting their claims to the honor of obtaining the school in question.

SPANISH GYNECOLOGICAL SOCIETY.—At the opening session of the Spanish Gynecological Society for 1889–90. Dr. E. Verdonces read a paper entitled "Some reflections tending to prove that the confidence inspired by our knowledge of anæsthesia and the employment of modern antiseptic methods does not justify or exonerate us in practicing the operations, often performed at the present day, of laparotomy, and especially so-called exploratory laparotomy."

THE LONDON MEDICAL RECORDER states that methyl-benzo-sulphinic acid has sweetening properties many times superior to saccharin. Like it, too, the new drug has disinfectant properties.

TOPICS OF THE WEEK.

THE BACTERIOLOGY OF INFLUENZA.

We have now before us the original preliminary communication[1] by Dr. Maximilian Jolles, the reputed discoverer of the microbe of influenza, and well might we exclaim: "Parturiunt montes, nascitur ridiculus mus!" After all, the dust raised about the discovery of the microbe of influenza vanishes into air on perusing the statements made by the discoverer himself.

Dr. Maximilian Jolles is the co-proprietor of a private "chemico-microscopic laboratory," evidently devoted to the examination, chemical and microscopic, of sputa, urine, etc., sent for the purpose of diagnosis by medical men. The work on influenza was, therefore, not carried out in the Vienna Bactoriological Institute, and was not superintended by Professor Weichselbaum. In justice to Dr. Jolles, it ought to be stated, however, that he himself protests against being forced, by the untimely and exaggerated accounts given by the daily papers, to publish a preliminary abstract of his observations, these being as yet far from concluded, and therefore not allowing any definite conclusion to be drawn from them.

In examining sputa from patients who had previously suffered from influenza, he was repeatedly struck by the presence of numerous capsulated cocci, resembling Friedländer's so-called pneumonia bacillus, Although aware that other reliable observers had demonstrated the presence of this microbe in normal sputum and in various normal fluids, yet Dr. Jolles insists on the fact that in the specimens of sputa sent to him the bacillus of Friedländer was present in considerable numbers, though he also adds that other bacteria—bacilli, pus cocci, and streptococci—could be demonstrated.

By culture on gelatine Dr. Jolles isolated the capsulated microbes, and ascertained that, both as regards the manner in which they stain with different dyes and as to their cultural characters, they resemble Friedländer's microbe. He found the same capsulated cocci in the urine of a patient suffering from acute purulent cystitis, and also on one occasion on which Vienna drinking water was subjected to bacteriological examination he found in it also, besides various other species of bacteria, this particular species of capsulated coccus. Lastly, two rabbits were inoculated with the cultures; one of them showed no result, the other died on the fifth day from septicæmia.

These are all the facts observed by Dr. Jolles, and it must be clear that of the discovery of the microbe of influenza there is really very little evidence, if any. In the first place, the assumption made by Dr. Jolles that Friedländer's bacillus has a causal relation to pneumonia has been, as far as croupous pneumonia is concerned (and it is for this pneumonia that its etiological importance had been asserted by Friedländer and others), abundantly disproved, since this microbe is present in various conditions in no way related to pneumonia, for example normal sputum, the normal fluid of the mouth, etc.

[1] Wiener medizin, Blätter, No. 4, xiii.

In the second place, Dr. Jolles' argument that because in some cases of influenza one kind or another of pneumonia supervenes on the primary attack, one of the species of microbes present in the sputum of such pneumonia might be, and probably is, the microbe of influenza, is faulty in logic as well as in fact. We have already pointed out, in the last number of this journal, that the pneumonia following some cases of influenza is not of a uniform character, and is evidently a secondary complication; and, therefore, the microbe, even if proved to be the cause of this pneumonia, need not necessarily be the organism of the primary disease, that is, of the influenza. The demonstration of the microbe in a sufficient number of cases of influenza during the early stages of the disease must be the very first and preliminary step. This, however, has not been taken.

To all those interested in the discovery of the nature and causes of epidemic diseases—and none can and ought to be more so than the general public—the publication of incorrect, misleading and exaggerated accounts such as were telegraphed on the subject of the discovery of the microbe of influenza from Vienna, and appeared in Vienna, London and elsewhere, must always remain a regrettable incident.—*British Medical Journal*, Feb. 1.

MEDICAL PRACTITIONERS' MEALS.

Moderation and regularity probably form the concluding words of most of the elaborate directions so often expected by patients and given by their medical attendants. This is the theme which is repeated again and again, with slight variations; the quantity or the variety of alcohol may be indicated, the use of pickles and heating ingredients deprecated, and the kind of vegetable, cooked or fresh, may give a short respite to the monotony; but the theme is bound to assert itself afresh, and to come in with tremendous force at the close of the oration, so that the patient leaves, humming the refrain, "moderation and regularity," as though the words had never been heard before, and possessed a talismanic power which it had been left for the wisdom of the nineteenth century to disclose. But, joking apart, it may be worth inquiring how far the medical profession furnishes living examples of the truth of the doctrine. Upon general lines all are agreed, even though some may seek to widen the scope and intention of the words by adding significantly, "In fact, temperance in all things." When the question is pressed more closely, however, it will be found that the rush of work, the exacting demands of patients, and keen competition, do not allow many in general practice to follow out the second half of the lesson. It is more particularly the younger men who suffer from want of regularity, those who fear the consequences of delay when an urgent message has been received. From a health point of view it is sufficiently lamentable to find that they often have not time for their meals, but surely they are acting upon a mistaken notion of their duties to their patients. A tired brain, exhausted from want of food, is not best fitted to cope with the serious problems so often set before it. Surgeons understand the monetary value of moderation and regularity, so that their punctuality in all matters becomes proverbial; but the

family medical attendant sometimes seems to consider himself privileged to be a little late, on account of his numerous engagements. Is it too much to hint that, for his own sake as well as for his patients', one engagement, his dinner hour, should be kept with greater regularity? Many practitioners are at work for longer hours than railway signalmen, for whom so much proper sympathy is felt in the event of a catastrophe. If the public could realize that it is unreasonable to expect good advice from a tired and hungry medical man, fewer exacting messages would be sent, to the advantage of all concerned.—*The Lancet.*

RECENT SIGNATURES TO MEDICAL DECLARATIONS ON ALCOHOL.

Three leading declarations on the subject of intoxicants have been published, with the signatures of many leading members of the medical profession. The first of these was issued in 1839, and was to the effect that intoxicating liquors were unnecessary in health in any quantity, while excessive quantities were injurious. This was signed by, among others, Sir Benjamin Brodie, Sir James Clark and Dr. Marshall Hall. The second declaration appeared in 1847, and was mainly to the effect that perfect health was compatible with abstinence from all intoxicants, which might safely be discontinued at once or gradually, and that universal abstinence would conduce to the health, prosperity, morality and happiness of the human race. Sir John Forbes, Sir Risdon Bennett, Sir J. McGregor, Sir B. Brodie, and 2,000 other well known physicians and surgeons appended their names. The third declaration appeared in 1871, Mr. Ernest Hart and Dr. Parkes having initiated it. It was designed to call attention to the inconsiderate prescription of large quantities of alcoholic drinks in disease as a grave danger, and to suggest a careful prescription, as in the case of a powerful drug, for the occasion only. This was largely and influentially signed by consulting and hospital physicians and surgeons. Within the last year and a half the British Medical Temperance Association has secured 622 additional signatures. Of this number no fewer than 561 have been affixed to all three manifestoes. Among the names appended to the last document are those of Prof. McKendrick and Sir George Macleod, of Glasgow, Prof. Simpson, of Edinburgh, Sir Henry Pitman and Dr. W. S. Playfair. Among the signatories to one or other of the declarations have also been Dr. Bristowe, Dr. Matthews Duncan, Sir George Paget and Dr. Bridges (of the Local Government Board). Such a body of testimony from the medical profession is the best answer to the aspersion so frequently indulged in by irresponsible agitators that medical men are generally opposed to the temperance reformation. This great and growing movement has no truer friends than the many within the ranks of the medical profession.—*British Med. Journal.*

THE EPIDEMIC OF INFLUENZA.

Those who have followed the character and spread of the present epidemic on the Continent and in this country must no doubt have come to the conclusion that, like other epidemic diseases, influenza is spread by contagium, and must be due to a living organism, a microbe. The discovery of this has been announced from Vienna. Some of the daily papers, on Wednesday of this week, brought the news that the microbe of influenza has been identified by Drs. Maximilian and Jolles, working in the Vienna Bacteriological Laboratory under Professor Weichselbaum. It is stated briefly that this microbe is similar to, but not identical with, the microbe of croupous pneumonia. Many of the readers of the *Journal* are aware that Weichselbaum had, independently of Fränkel, of Berlin, shown that genuine croupous or fibrinous pneumonia is due, not to the bacillus of Friedländer, but to a capsulated diplococcus—the diplococcus pneumoniæ—having special morphological and cultural characters. The discovery of the influenza microbe, coming from such a distinguished and reliable source, deserves in itself careful attention, and this is enhanced by the fact that in the influenza of the present epidemic both on the Continent and in this country, some kind of pulmonary distemper is one of the conspicuous symptoms; and this, though generally mild and of the character of a slight bronchial catarrh, has yet proved fatal in a certain percentage of cases terminating as severe pneumonia. On the other hand, it is necessary to bear in mind that in these fatal cases the pneumonia is not of the same nature in all cases; the *post-mortem* examination shows it to be in some instances of the character of severe catarrhal or broncho-pneumonia, while in others it is more of the nature of fibrinous pneumonia. Further, it is to be remembered that, except in these fatal cases, the disease itself in its course and symptoms has no more similarity to croupous pneumonia than to typhoid fever, and that the pneumonia, when present, is always of the nature of a secondary complication, supervening on previous pulmonary weakness (age, previous disease, or a chill caught during convalescence from the primary influenza). It is, however, premature to make any further remarks about the matter until all the details concerning the microbe and the evidence as to its claims to be regarded as the microbe of influenza are made known.—*Brit. Med. Jour.*

ABDOMINAL SECTION.

The *Weekly Medical Review*, December 28, 1889, publishes a paper which was read by Dr. L. S. McMurtry, of Danville, Ky., at the meeting of the Southern Surgical and Gynecological Society November 13, 1889, at Nashville, with a tabulated report of cases. In connection with many valuable and practical suggestions, he closes the article with the following words:

Increasing experience has impressed me more and more with the difficulties of abdominal work, and makes me less confident of often meeting with simple cases. In conclusion I desire to make an earnest plea for earlier interference in abdominal diseases. What Bantock has done in England by his little work entitled "A Plea for Early Ovariotomy," we need to do in our own country. When operations are done in good time, before emaciation and exhaustion come on, and before repeated attacks of peritonitis have complicated comparatively easy tasks for the surgeon, then will our results excel even the brilliant record of the present time.

PRACTICAL NOTES.

THE USE OF ANÆSTHETICS IN NATURAL LABOR.

Obstetric anæsthesia is quite different from surgical anæsthesia, the latter being indicated for all obstetrical operations. Obstetric anæsthesia may be general or local. For the former are used ether, chloroform, chloral, and a variety of mixtures, including the bromide of ethyl and the protoxide of nitrogen. Chloral can hardly be considered as a general anæsthetic in the same sense as ether and chloroform. An injection of three or four grammes of chloral in solution given during the period of dilatation, and repeated perhaps in four or five hours, will often prove of the greatest benefit and comfort to the patient, regulating the pains, moderating the suffering of the patient, and abbreviating the duration of labor. In the latter part of labor chloral is less useful than chloroform, this substance being now almost universally used in parturition. When it is employed only in the first stage of anæsthesia no particular influence is exerted upon the contractions. If it is pushed to the second stage the contractions are retarded, but soon resume their normal rhythm. In the third stage of chloroform anæsthesia the contractions are diminished, or may cease altogether. This is a stage of danger, for not only the uterus but the heart and other muscular organs may be paralyzed. The fœtus experiences very little of the effect of the chloroform. The author's experience is summed up in the following propositions:

1. Chlororm given in small doses produces a condition of physical and moral calm in the patient.

2. If the inhalations are prolonged for a considerable time, the result will usually be an attenuation of the uterine pain. The perceptions of the patient become less keen and the uterine contractions are slower.

3. If the period of complete anæsthesia is reached with analgesia there is surgical and not obstetrical anæsthesia.

4. In some cases chloroform excites instead of calming, aud in such cases its use should be discontinued.

5. In some cases chloroform has unquestionably diminished the retractability of the uterus, and has thus been the cause of more or less severe hæmorrhage after labor.

6. Chloroform has no action upon the fœtus.

7. Chloroform given during the period of expulsion has a less decided effect upon the contractions of the abdominal muscles and the resistance of the perineum than is generally supposed. The sensation of pain at that period is not entirely abolished, the contractions are frequent, and Charpentier has failed to notice that which has been called by Campbell dissociation of the sensations of touch and pain.

Chloroform is especially indicated—

1. In primiparæ who are nervous and excitable, and in whom the pain may even cause delirium; also in those with whom the labor is greatly prolonged, thus becoming a source of danger.

2. In all cases in which there is a spasm, contraction, or rigidity of the back of the neck or body of the uterus. Contra-indications are the absence of severe suffering, the existence of placenta prævia, general prostration, disease of the circulatory or respiratory organs, cerebral disease, alcoholism, etc.

During the period of dilatation chloroform is most required, but only to the extent of obstetric anæsthesia, as a rule. It sometimes gives rise to nausea, vomiting, headache, and various nervous troubles. Hæmorrhage is not likely to result unless the anæsthesia is profound. Chloroform can not cause convulsions; on the contrary, it is one of the best means for relieving them. It may also be useful in warding off puerperal mania from those patients in whom the intense pain of parturition might lead to such a result. Dutertre has found reports of forty cases of sudden death during labor attributable to chloroform, but of that number thirteen should be eliminated as irrelevant. Of the others, some had cardiac or pulmonary disease, some suffered from alcoholism, and in the others narcosis was too profound. A first condition in the use of chloroform is that it be chemically pure; death from respiratory syncope may follow the use of an impure article: Small quantities should be given, the patient being in the horizontal position, and there should be an interval between successive inhalations.

Subcutaneous injections of antipyrine, twenty-five centigrammes at a dose, have been used in a number of cases to produce obstetric anæsthesia. Chiari and Guéniot report good results from its use. Various mixtures have been suggested, in most of which ether, chloroform, or chloral is an element. Doléris has advised the local use of a five-per-cent. solution of cocaine muriate to mitigate the pain of labor, but the author expresses his views upon the subject as follows.

1. Nothing can be applied to relieve the pain caused by the distension of the lower segment of the uterus which causes the pain felt during the contractions.

2. Applications of cocaine may give relief if they reach the nerve endings of the supravaginal and infravaginal portions of the cervix and the nerves of the vagina. Thus the pain of dilatation may be modified.

3. For the pain produced by compression of the nerve trunks of the pelvis no local application will avail.

4. The pain in the vulva and vaginal mucous membrane during expulsion may be somewhat modified by local applications.

As to the value of hypnotism in parturition it must have a limited range. Of thirteen cases in which it was tried, it was successful in only four, the patients all being of a hysterical temperament.—Charpentier, *Bull. et mém. de la soc. obst. de Paris*, 1889, No. 5.—*N. Y. Med. Jour.*

SOCIETY PROCEEDINGS.

Pittsburgh Obstetrical Society.

Regular Meeting, November 7, 1889.

R. STANSBURY SUTTON, M.D., PRESIDENT, IN THE CHAIR.

DR. J. J. GREEN, of Pittsburgh, presented the following paper:

FACE PRESENTATIONS.

We understand by a face presentation that the chin is extended, that the occiput is reflected against the neck, and the face with the frontal portion of the skull occupies, or has a great tendency to occupy the pelvic entrance. This condition does not occur frequently. Statistics show that among French obstetricians, about one in 250 presents a face. Dr. Churchill, some years ago, found that in British practice, face presentations occurred once in 292 cases.

According to German statistics, it occurs once in 130 cases. If it could be proven that the difference in number really occurs, we might conclude that some difference in the anatomical formation of the pelvis exists, or that the fœtal head among Germans is somewhat less, or may more frequently possess a long occiput.

Face presentations seem to solicit only a cursory mention by many of our writers on obstetrics. We regard the subject of much more importance than seems to be attached to it by many writers. When we review the causes leading to face presentations, and difference of opinion with reference to management of same, it will be noticed that some good authorities recommend one method of procedure, while equally as good advocate manipulation almost directly opposite. One directs version, another non-interference. Doctrines of this character tend largely to confuse the general practitioners—the men who really occupy the front rank among obstetricians, for it is they who wait on the legitimate mothers of families.

Edward L. Partridge asserts that there is no great disparity in the views of obstetricians upon the cause of face presentations. This may be true in a measure; yet it is equally true that scarcely any one writer coincides in a majority of particulars with anyone else.

There seems little dispute about the classes or varieties of face presentations. Anterior, transverse, and the posterior varieties, we think may with propriety include all shades of position as well here as in any other presentation; for a very small difference in the pelvic slopes will sometimes cause a vast modification of a vertex presentation. Any ordinary obstetrician can, after a few hours of impatient waiting, discover some kind of a misfit between the outline of the fœtal head and the beautifully described pelvic planes as set forth by Meigs and Bedford.

Obliquity of the uterus, according to most authors, is believed to be the cause of a very large majority of face presentations, from the fact that in nearly all cases, immediately after the diagnosis of face presentation is confirmed, obliquity of the womb is found to be present. Yet, frequently obliquity of the uterus is *well* marked, and the face does not present. We find recorded a number of face presentations observed during post-mortem examinations, which we think prove very little, the diagnosis not having been made out previous to the death of the mother. If the mother died before the fœtus made its last effort to move, the absence of contractile power of the uterus would permit the child to assume almost any position, and remain there indefinitely. Again, the fœtus might gravitate, regardless of any and all surrounding circumstances, either with tendencies to bring about face presentation or any other head position. It seems reasonable to grant that in case of dead fœtus with head presenting the chin would drop away from the chest. We find all manner of presentations when the child is dead *in utero*, previous to setting in of labor pains. It is in such cases that a large quantity of liquor amnii is usually present, and the membranes usually protrude unobstructed, containing an excess of fluid. The membranes being ruptured, a large quantity of fluid suddenly escapes, thus accounting for a portion of the excess in number of face presentations, when the fœtus dies some time before the beginning of labor. Another cause of face presentations: In dead children there is lack of resistance on the part of the spinal column, when the uterus is conducting the early stage of labor and the fundus pressure cannot be properly centred. In other words, the axis of the fœtus cannot be sustained; the mechanism of labor becomes unnatural, and the result doubtful. We might state that we believe any cause that may lead to the separation of the chin from the chest will lead to a face or brow presentation. This cause may exist in the fœtus itself or in the anatomical formation of the mother's pelvis. The bony or soft parts may be at fault. Ahlfeld ascribes one case to enlargement of the thyroid gland. Increased size of the chest; some unusual looping of the umbilical cord; either too small or too great a quantity of amniotic fluid may give rise to face presentation. The

causes may be physiological, pathological, anatomical, and we might safely and truthfully state traumatic or surgical, for not long since I heard a physician say that he believed he converted a crown to a face presentation. Hecker places great stress upon the shape of the child's head. Judging from the appearance of most of the babies that have faced me as an obstetrician, I would be perfectly willing to grant Hecker the full credit of his claim. Some of them were days in getting into human shape. The diagnosis may be very easy for some, but with others the task is a troublesome one. My first case was properly made out after some time. I have always congratulated myself on the case, believing that it was some unusual form of face presentation that never occurred before, and I am very certain I have not made a similar diagnosis since.

By the touch only can the diagnosis be made, and then the membranes must not be thick or largely distended. You must see that everything connected with the case is favorable for an early diagnosis, for in the majority of cases the head remains high and the membranes low, and usually the frontal bone can most easily be touched, and it moves about with such a degree of facility that the obstetrician frequently finds it expedient to remain silent in the presence of the lady in labor and her near relatives. The outline of the face, according to most authorities and all the obstetricians, is the only reliable sign. These, however, are easily determined as soon as the head descends low enough.

The mechanism of labor in face presentations is similar in nearly all respects to that of head in any other position. When the chin presents in either of the lateral positions, descent and rotation, though somewhat delayed, always takes place without interference. It is when rotation of the chin does not take place that the skill of the obstetrician is taxed. That labors have terminated successfully without the rotation of the chin we cannot doubt, when such men as Partridge, Taylor, Tarriere and others report them. But in nearly all cases the results are disastrous.

I have succeeded in rotating the head three times, I think, in all; once in converting a face to a vertex. After repeated efforts the patient was directed to take the knee-chest position. I had not read of placing the patient in this position with a view of converting a face to a vertex, nor can I speak of it in the hands of others, but I accomplished the end without much difficulty by placing my left hand under the abdomen of my patient and introducing the right hand well into the vagina, and by upward pressure I was, with very gentle pressure against the head with index and middle fingers of right hand, enabled to force back the chin and face. I then placed the woman on her left side and in a few minutes the vertex presented. I then ruptured the membranes. The case terminated successfully in a short time.

DR. KEARNS: I never saw but one case of face presentation; it is rarely encountered. I have had cases which were face presentations, but not worthy of mention, inasmuch as they were premature fœtuses and not attended with any difficulty whatever. The one case I had, thirty years ago, I will never forget. I had had but little experience prior to that time. The labor was protracted and very severe; delivery was spontaneous. When I recognized the presentation it was far advanced. I cannot recollect whether the child was dead or living; my memory is at fault: but I know the patient recovered, although it required a vast amount of patience on the part of the attendants, the case being protracted. I am sorry the doctor did not go more fully into the treatment of these cases. His classification of three forms is perhaps practically correct—posterior, right and left. As to the cause of this malpresentation, might it not be automatic? Might not the motions of the child produce it? Might not the fœtus take a somersault and turn around and never be restored? With regard to treatment of cases, their delivery should be left to nature, I think.

DR. BLUME: I was much pleased with Dr. Green's paper. As he says, face presentation has often been the subject of discussion among obstetricians, and yet there is still a diversity of opinion as to its etiology and treatment. The doctor gave some causes which may produce this presentation. Wincle states that there are thirty-three theories on the etiology of this presentation. I do not intend to dwell on these; I wish to make a few remarks on the treatment. Since Boer, in 1791, first clearly described the mechanism of face presentation, and showed that the chin always rotates to the front, no matter in what diameter the face presents at the pelvic inlet, an expectant treatment has more generally been recommended. To-day it is the opinion of leading authorities that an expectant management should be considered as a fundamental rule in all those cases in which no contra-indication exists at the commencement of labor, and no complication develops during the process of labor.

Such a contra-indication is a contracted pelvis. Its importance in the etiology of face presentation is well known, for we meet with it in about one-third of all cases. Another important contra-indication is placenta prævia. The third factor, which often may require interference, is feebleness of the uterine action, which may develop during the progress of labor; and, finally, anomalies of the mechanism will also require assistance, among them mento-posterior positions in which anterior rotation does not occur, Let us consider now a case with a contracted pelvis, where the true conjugate is somewhat less than four inches.

It is the opinion of most authorities that the delivery should not be left to the powers of nature. The best method to deliver the child and protect the mother in such cases is version. If this fails, it may be possible to change the extension of the head and produce flexion. If this is a failure and the chin does not rotate to the front, it might be permissible for a skilled man to apply forceps and try to perform rotation, but very carefully. The blades may be applied like Scanzoni recommends, and may be taken off and re-applied if necessary. If this also should fail and the condition of the mother demand prompt delivery, craniotomy remains as the only safe procedure.

Now, in cases of normal face presentation, where the head and the pelvis are normal, in such cases rotation usually will take place and no interference is necessary as long as the mother and child are in good, healthy condition. If rotation should not occur, we have several ways to imitate and assist nature. In cases of mento-posterior presentation, for instance, rotation may not take place, because, as Penrose recently described, the chin cannot descend far enough to meet with a sufficient resistance, and this is certainly true. He recommends a simple procedure, which deserves our attention. He applied in such a delayed case a blade of the forceps on the posterior cheek, so that it found resistance, and the chin swept around instantly. Another method is the application of the forceps and trying to bring the chin to the front in the manner described by Scanzoni, but, as Penrose terms it, coax it rather than compel it to rotate. A better method than this latter attempt to produce rotation is to produce flexion and make out of a face presentation a normal vertex presentation. This can be done in three different ways. The old way, followed hundreds of years, is described by Dr. Green. The hand is introduced, the head is lifted upward and the chin brought to the breast. If this fails, an attempt can be made to pull the occiput down, while the other hand presses firmly upon the head, through the abdominal walls. A better but more difficult method is described and recommended by Schatz. He changes the unnatural lordotic attitude of face presentations into the normal kyphotic attitude of vertex presentations by external manipulations.

This method requires great dexterity, is permissible only during the first stage of labor, and often impossible when the abdominal walls are very thick, so that it is difficult to make out the shoulders so that you have a hold on them. Schatz first showed that face presentation is not only a faulty position of the head, but a faulty position of the whole body.

The last method was described three years ago by Thorn, formerly assistant of Olshausen. The hand is introduced inside the vagina, the head lifted upward, the chin, the forehead and the occiput moved towards the breast. The external hand assists by pressing first the occiput downward, then the breast—as you see here on the board—from left to right, and finally the breech from right to left, so that a completely normal vertex presentation is produced.

This method is said not to be difficult; it can be performed even after the waters are drained off. If these methods fail, podalic version is indicated, and should this prove impossible, the obstetrician having been called too late, nothing is left but craniotomy; it is the only safe way to deliver, and in such case a conservative operation. It is not allowable under any condition to attempt to deliver with forceps when the chin is directed to the sacrum.

DR. DUFF: I would like to put myself on record. I don't believe in this conservative work in face presentation, as placed before us to-night. I think it the duty of the obstetrician to make his diagnosis early, and, having made the diagnosis, rectify it by one of the methods suggested by Dr. Blume. You have not any right to sacrifice both mother and child by a faint hope that the head is going to pass through under these circumstances where you have the opportunity of making a diagnosis early in the case. And, furthermore, I was sorry that Dr. Green did not go more extensively into consideration of the delivery of face presentation with chin posterior. The cases reported in our journals I do not believe. I believe it is an absolute impossibility for a child weighing 13½ pounds to pass through a pelvis, even if that pelvis is 6½ inches.

DR. BLUME: Dr. Green stated in his paper that external examination in face presentation fails, if I understood him right. I must say that abdominal examination is often the only way to make out an exact presentation. The head is high up if you have a contracted pelvis, and it is sometimes impossible to diagnosticate exactly by the vagina those conditions which may be readily made out by abdominal palpation and auscultation.

DR. GREEN: I agree with Dr. Kearns in his remarks to a great extent. I think myself, and I believe the general impression is, where the pelvis is not contracted that all cases would terminate successfully without any surgical interference. It may have been my misfortune to meet with a few more face presentations than some others, yet I have not seen nearly so many as some physicians who attend a much less number of cases of confinement than I do. I have never seen a delivery where rotation of the head did not occur, though I have no reason to disbelieve such men as have testified differently. I think certainly they know what they saw. I have only one remark to make in regard to what Dr. Blume has said as to deformed pelves. So far as I have looked up the matter I think his report of causes is true. A de-

formity of the pelvis, whilst it may produce a face presentation, is no more likely to produce a face presentation than any other position of the head, and whilst it may produce a larger number of cases than some of the other causes assigned, I would state that so far as I have read the matter up, the authors do not so state it. One further remark I wish to make in regard to the causes spoken of by Dr. Kearns, that is the motion of the child itself. Now that is given by some author, I cannot tell you by whom. Dr. Blume speaks of 33 theories (Winckel). There are more than that number. As regards version. In the cases that I saw, and as far as I have looked the matter up, version after the rupture of the membrane by external means, is not possible; it has failed entirely in the hands of the finest obstetricians. Besides, version of the child is one of the most hazardous operations to the mother. More women die after version than after any other surgical procedure unless it be after craniotomy. They can be lacerated to a great extent by the use of instruments, or by manipulation in trying to place the head in position. During anæsthesia they will endure instruments for hours, and they will endure the powerful manipulations of three or four men working for hours, and will recover, yet after version the mortality is greater.

DR. DUFF: Do you think that statistics stating the number of deaths from version during the past fifteen years would be reliable to-day? One of the great causes of mortality from version in the old statistics is the fact that we did not use antiseptics.

DR. GREEN: I am glad you spoke of that. In looking this matter up I found one writer who stated that with all the present antiseptic facilities the mortality was greater.

DR. BLUME: I only want to defend version. The obstetrician more and more recognizes the value of version in some cases, but these cases must be suitable ones; you must not have a half-dead woman to practice on.

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR REGULAR CORRESPONDENT.)

Anæmic Œdema—Osteitis of the Ribs—Gastrostomy—Ulcerations of the Uterine Neck—Congress of Dermatology and Syphilography.

Dr. Robin read a note at a recent meeting of the Academy of Medicine, in the name of Dr. Renaud, of Lyons, in which the author describes a frequent lesion, but undescribed till now—that is, anæmic œdema. He studied the conjunctival structure of the renal tissue, which he supports on clinical and anatomo-pathological observations. The article is headed. "On the false impermeability of certain Brightic kidneys, and the therapeutics of comatose uræmia." The author explains that in nephritis in general, the number of glomerules affected is infinitely less than is supposed, and it is not in the diminution of these glomerules that one must seek the annulling of the renal functions. There frequently exists in Brightic kidneys a lesion which is known under the name of anæmic œdema. The papules of urticaria are a type of this condition. It results from an acute congestive œdema, operating in an inextensible tissue, the dermis. When the liquid of the œdema has acquired a sufficient tension to counterbalance that of the blood in the vessels, it flattens them and renders them exsanguineous, whence the pale aspect well known of the centre of the nettle-rash papule. Things do not pass otherwise in the parenchyma of the kidneys, in case of congestive, sudden and intense œdema. It results that, in the cases of chronic nephritis, the preventive treatment of uræmia should consist in a lacto-vegetable alimentation, alternated with eggs and meat which, like that of pork, do not sensibly leave toxic residues. But the principal indication is the systematic discongestioning of the kidney, not only by the application twice daily of dry cupping to the triangle of Y. L. Petit, but also by the moderate applications of leeches, each time that the coefficient of exudation is seen to be lowered. The treatment of the attack of comatose uræmia may therefore be thus summed up: One must, above all, have in view the direct discongestioning of the kidney, momentarily annulled by the uræmia. This may be effected by general bleeding, then by local bleeding, by the reiterated application of leeches, six to be placed on each side, then three only each day, until the anuria ceases. These appear preferable to scarifications. The second indication is to raise the intravascular tension, by means of drinks, by the ingestion of milk or of pure water. As the ingestion of liquids cannot be pushed to any extent, this indication may still be fulfilled by the aid of enemata of pure water; 250 grams injected each time into the rectum, every two or three hours, preceded by a purgative enema. The arterial pressure is thus not only raised, but by this means the washing of the tissues is effected, and the materials more or less toxic which are accumulated in them render them soluble. Finally, recourse is had to the frequent inhalations and almost continued of oxygen gas, which is applied to the mouth and to the nostrils, by means of a large glass funnel. One thus acts on the nervous system and on the interstitial combustions, which are raised, and which enter for a great part, in the destruction of the toxic matters retained in the interior. This treatment has not in view the cases of eclamptic uræmia of chronic degenerative nephritis, called parenchymatous. What the

mechanism of the production of the uræmia in this case is, is a question which has not yet been elucidated.

Dr. Chauvel had occasion twice during the year 1889 to observe a complication of abscess of the liver, in the form of caries or osteitis of the ribs in the neighborhood of an opening of a purulent collection externally. From these two observations, which Dr. Chauvel read before the Academy of Medicine, he deduces the following conclusions: 1. Caries or chronic osteitis of one or more ribs, may present itself as a distant complication of abscess of the liver opened externally, whether spontaneously or artificially. 2. The osseous alteration, which may extend to a considerable length of the ribs and of their cartilages, is the result of inflammation produced by the contact of irritating pus. It becomes the cause of the transformation of the wound into a fistulous tract persisting indefinitely. 3. The indication is clearly to excise the fistulous tract, to remove the osseous and cartilaginous parts which are altered, to scrape the parietes of the suppurating cavity and to allow the loss of substance to be filled up by granulations from the bottom to the surface. 4. It may be necessary to resect a healthy rib to enable the surgeon to open largely the morbid focus and to excise the diseased bones. This resection, which alone permits the cure, adds nothing to the gravity, generally very slight, of surgical intervention.

At the same meeting of the Academy Dr. Terrillon recalled the circumstance of his having presented, eight months ago, a man on whom he had performed the operation of gastrostomy for an impermeable narrowing of the œsaphagus. This man fed himself by the fistula of the stomach, but the gastric juice, which was very acid, constantly ulcerated the opening and caused intense pain. Attempts having been made to reestablish the permeability of the œsaphagus, the surgeon succeeded, in the month of July last, in obtaining a sufficient dilatation to enable the patient to feed himself normally. Dr. Terrillon then resolved to close the fistula. In order to affect this the edges were vivified to the neighborhood of the mucous membrane, then the union was effected by the aid of two rows of suture. There remained of this operation a small fistula which in its turn was obliterated. The man now eats and lives like other people, but he is still obliged to wear a slight compressive bandage, and to submit occasionally to catheterism of the œsophagus.

In writing on ulcerations of the uterine neck, Dr. Terrillon states that this ulceration is only a myth excepting of course specific ulcerations. According to the author these so called ulcerations are the result of metritis. The surgeon should therefore treat the metritis without occupying himself about these apparent ulcerations, and these will disappear when the remainder is cured, without having recourse to cauterizations which are so much abused.

The first meeting of the Congress of Dermatology and of Syphilography for the year 1890 will take place on Thursday, the 10th of April, and continue on the two following days, from 9 to 11 A.M., at the Saint Louis Hospital. The programme of the questions to be treated should be forwarded before the 1st March, to Dr. E. Vidal, general secretary, 65, rue d'Anjou, Paris.

The meeting of the Société Francaise d'Ophthalmologie for 1890 will take place on Monday, May 5th, 1890. A. B.

DOMESTIC CORRESPONDENCE.

Army Medical Board.

WAR DEP'T, SURGEON-GENERAL'S OFFICE,
WASHINGTON, D. C., February 8, 1890.

To the Editor:—SIR: The Surgeon-General directs me to invite your attention to the enclosed notice of the organization of an Army Medical Board, to meet in New York City on May 1, 1890, and to request that you will give it a place in your journal as a matter of news, and to call such attention editorially to it as you may deem proper. Very respectfully,

CHAS. R. GREENLEAF,
Major and Surgeon, U. S. Army.

NOTICE—AN ARMY MEDICAL BOARD

will be in session in New York City, N. Y., from May 1 to 31, 1890, for the examination of candidates for appointmenf in the medical corps of the United States army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application for the necessary invitation to the Secretary of War before April 1, 1890, stating the place of birth, place and State of permanent residence, and enclosing certificates based on personal knowledge from at least two physicians of repute, as to professional standing, American citizenship, character and moral habits; also, statement of service in hospital from the authorities thereof is desirable. The candidate must be between 21 and 28 years of age and a graduate from a *regular medical college*, as evidence of which his diploma must be submitted to the Board.

Further information regarding the examinations and their nature may be obtained by addressing the Surgeon General, U. S. Army, Washington, D. C.

JNO. MOORE,
Surgeon-General, U. S. Army.

CIRCULAR OF INFORMATION FOR MEDICAL MEN WHO MAY BE DESIROUS OF ENTERING THE U. S. ARMY MEDICAL DEPARTMENT.

The Medical Department of the army consists

of one Surgeon-General with the rank of Brigadier-General, one Assistant Surgeon-General, one Chief Medical Purveyor and four surgeons with the rank of Colonel, two Assistant Medical Purveyors and eight surgeons with the rank of Lieutenant-Colonel, fifty surgeons with the rank of Major, and one hundred and twenty-five assistant surgeons with the rank of First Lieutenant of Cavalry for the first five years of service, and of Captain of Cavalry subsequently until their promotion by seniority to a majority.

With the rank stated in each case the pay and emoluments of the rank are associated. The salary of each grade is a fixed annual sum payable monthly; but at the end of each period of five years of service the annual sum representing the pay of the grade is increased by 10 per cent. until 40 per cent. is added. After twenty years of service the 40 per cent. additional continues to be drawn, but the further increase of the pay by 10 per cent. additions ceases, *i. e.*, an officer, although he may have served twenty-five or thirty or more years, can, under existing laws, have no more than 40 per cent. added to his pay proper by way of increase for length of service. The pay of a first lieutenant of cavalry or of a medical officer during the first five years of his service is $1,600 per year, or $133.33 per month. At the expiration of his five years of service he becomes, by virtue of that fact, a captain, and his pay is that of a captain of cavalry, $2,000 per year, increased by 10 per cent. for his years of service, viz, $2,200 annually, or $183.33 monthly. At the end of his tenth year of service this rate of pay is increased by the service-addition to $2,400 annually, or $200 per month, and after five years more the service-addition makes his pay $2,600 annually, or $216.67 per month. If he continue in the rank of captain, at the end of twenty years of service his monthly pay becomes $233.33; but about this time promotion to a majority is usually obtained, and a major's annual pay of $2,500, with 40 per cent. added, makes the monthly pay of the major and surgeon $291.67. Subsequent promotion, investing the individual with the rank of lieutenant-colonel, colonel and brigadier-general, augments the monthly pay respectively to $333.33, $375.00 and $458.33. Compulsory retirement at the age of 64 years increases the rapidity of promotion to the younger men; and when retirement is effected either by age or by the accidents of service prior to reaching the retiring age, the rate of pay subsequently drawn is 75 per cent. of the total salary and increases of the rank held by the individual at the time of his retirement. Thus, a major retired for broken health after twenty years service draws 75 per cent. of $291.67 per month; a colonel retired for age, 75 per cent. of $375.00. The medical officer has the right of selecting quarters in accordance with his rank, and when stationed in a city where there are no Government quarters, commutation money, intended to cover the expenses of house rent, is paid to him. The Government provides forage and stable room for the horses of the medical officer, and when traveling under orders the expenses of transportation are paid by the Quartermaster's Department.

Among the privileges granted to medical, as to other officers of the army, is that of leave of absence on full pay. The authorized leave amounts to thirty days annually. This leave is not forfeited if not taken during the year, but is credited to the officer, who may thus accumulate a continuous leave of four months on full pay. If he desires to be absent for a longer period than four months, and the permission is accorded him, he is reduced to half pay for all time in excess of the four months or maximum of cumulated leave of absence. Absence from duty on account of sickness does not affect the relations of the officer with the paymaster; he continues to draw full pay.

A commission in the Medical Department of the army is an instrument which is good for life, premising conduct consistent with its retention on the part of its possessor; but it involves no contract which binds the individual to service for any given number of years. On the contrary, should the medical officer find on experience that civil life has greater attractions for him than that of the army, there is nothing to prevent him from at any time tendering the resignation of his commission.

A young medical officer, on appointment, is usually assigned to duty for a few months at some large post where there are other officers of his department, to afford him opportunity of becoming acquainted with the requirements of the Army Regulations and the routine duties of military life. After this he goes to some post west of the Mississippi river, where he serves a tour of duty of four years. An assignment in the east follows the leave of absence which is usually taken at this time; and in after years his stations are selected so as to give him a fair share of service at what may be called desirable posts, as an offset to the time spent at less desirable stations.

Candidates for appointment to the Medical Corps should apply to the Secretary of War for an invitation to appear before the Army Medical Board of Examiners. The application should be made in the handwriting of the applicant, should give the date and place of his birth, and the place and State of which he is a permanent resident; it should be accompanied by certificates based on personal acquaintance from at least two persons of repute as to citizenship, character and moral habits. Candidates must be between 21 and 28 years of age (without any exceptions), and graduates of a regular medical college, evidence of which, the diploma, must be submitted to the Board. The morals, habits, physical and mental

qualifications and general aptitude for the service of each candidate will be subjects for careful investigation by the Board, and a favorable report will not be made in any case in which there is a reasonable doubt.

The following is a general plan of the examination:

1. The physical examination will be rigid; and each candidate will, in addition, be required to certify "that he labors under no mental or physical infirmity, nor disability of any kind, which can in any way interfere with the most efficient discharge of any duty which may be required."

2. Oral and written examinations on subjects of preliminary education, general literature, and general science. The Board will satisfy itself by examination that each candidate possesses a thorough knowledge of the branches taught in the common schools, especially of English grammar, arithmetic, and the history and the geography of the United States. Any candidate found deficient in these branches will not be examined further. The examination on general science will include chemistry and natural philosophy, and that on literature will embrace English literature, Latin, and history, ancient and modern. Candidates claiming proficiency in other branches of knowledge, such as the higher mathematics, ancient and modern languages, etc., will be examined therein, and receive due credit for their special qualifications.

3. Oral and written examination on anatomy, physiology, surgery, practice of medicine, general pathology, obstetrics and diseases of women and children, medical jurisprudence and toxicology, materia medica, therapeutics, pharmacy, and practical sanitation.

4. Clinical examinations, medical and surgical, at a hospital, and the performance of surgical operations on the cadaver.

Due credit will be given for hospital training, and practical experience in surgery, practice of medicine and obstetrics.

The Board reports the merits of the candidates in the several branches of the examination, and their relative merit in the whole, according to which the approved candidates receive appointments to existing vacancies, or to vacancies which may occur within two years thereafter. *At the present time there are seven vacancies to be filled.*

An applicant failing in one examination may be allowed a second after one year, but not a third.

No allowance is made for the expenses of persons undergoing examination, but those who are approved and receive appointments are entitled to transportation in obeying their first order assigning them to duty.

JOHN MOORE, *Surgeon General.*

Approved: REDFIELD PROCTOR, *Sec'y of War.*

WAR DEP'T, SURGEON GENERAL'S OFFICE,
WASHINGTON, D. C., December 12, 1889.

MISCELLANY.

LETTERS RECEIVED.

Dr. E. T. Vaughan, Evansville, Ind.; Dr. E. S. Lincoln, Wabasha, Minn.; Dr. D. B. St. John Roosa, New York; W. T. Keener, Chicago; Dr. Theo. Griffin, Baxter Springs, Kan.; P. Blakiston, Son & Co., New York; Dr. J. J. Bland, Houma, La.; Free Press Printing Co., Mankota, Minn.; Dr. W. H. Wathen, Louisville, Ky.; Dr. W. Murray Weidman, New York; Dr. G. L. Simmons, Sacramento, Cal.; N. Y. Engraving and Printing Co., New York; Publishers' Commercial Union, Chicago; E. Merck, New York; Dr. F. C. Hotz, Chicago; Dr. Chas. H. Knight, New York; Dr. L. S. McMurtry, Louisville, Ky.; Dr. R. S. Brice, Keota, Ia.; Dr. Edwin B. Shaw, Kansas City, Mo.; O. H. Haven, Youngstown, O.; Dr. William W. Pearce, Waukegan, Ill.; The Microscopical Society, Chicago; E. Merck, New York; F. C. Lewis, Catskill, N. Y.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from February 8, 1890, to February 14, 1890.

Capt. B. D. Taylor, Asst. Surgeon, is granted leave of absence for fifteen days, to take effect on the 15th prox. Par. 2, S. O. 17, Hdqrs. Dept. of the Missouri, February 7, 1890.

By direction of the Secretary of War, Lieut.-Col. Charles B. Alexander, Surgeon, is relieved from duty as examiner of recruits at New York City, and will report to the commanding General, Div. of the Atlantic, for duty as attending surgeon in that city. Par. 1, S. O. 33, A. G. O., Washington, February 8, 1890.

By direction of the Secretary of War, Major Henry McElderry, Surgeon, is relieved from duty at Fort Wayne, Mich., and will report in person to the Superintendent of the U. S. Military Academy, West Point, N. Y., for duty as post surgeon, relieving Major Henry R. Tilton, Surgeon, who, after being thus relieved, will report in person to the commanding officer, Ft. Wayne, Mich., for duty at that station. Par. 13, S. O. 33, A. G. O., Washington, February 8, 1890.

By direction of the Secretary of War, the extension of leave of absence on surgeon's certificate of disability granted Major Leonard Y. Loring, Surgeon, in S. O. 268, November 16, 1889, from this office, is still further extended two months on surgeon's certificate of disability. Par. 7, S. O. 34, A. G. O., Washington, February 10, 1890.

Major Henry R. Tilton, Surgeon, is granted leave of absence for two months, to take effect upon his being relieved from duty at the U. S. Mil. Academy, West Point, N. Y., by direction of the Secretary of War. Par. 6, S. O. 34, A. G. O., Washington, February 10, 1890.

By direction of the Secretary of War, the retirement from active service on February 9, 1890, by operation of law, of Col. Andrew K. Smith, Surgeon, under the provisions of the Act of Congress approved June 30, 1882, is announced. Col. Smith will proceed to his home. Par. 5, S. O. 34, A. G. O., Washington, February 10, 1890.

By direction of the President, Capt. Louis W. Compton, Asst. Surgeon, is detailed as a member of the Army retiring board at Chicago, Ill., convened by War Dept. order dated November 18, 1889, published in S. O. 269, November 18, 1889, from Hdqrs. of the Army. Vice Major Henry McElderry, Surgeon, hereby relieved. Par. 9, S. O. 36, A. G. O., February 12, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending February 15, 1890.

Medical Director N. L. Bates, ordered to Naval Hospital, Mare Island, Cal.